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Working Paper No.13

COARSE GRAINS, COARSE INTERVENTIONS
PART II STATE TRADING

A Case Study of Dryland Regions of India

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This is the second of two studies concerned with State intervention in agricultural marketing and is introduced in similar fashion to the first by summarising the nature and role of this sector of the economy. Agricultural Marketing systems have two potentially contradictory roles to play in economies whose resources are dominantly agricultural. Firstly it is through the process of commercialisation that the home market has developed and that non capitalist societies have been drawn into national and international monetary systems (Nadkarni, 1979). Increasing demands for money with which to purchase goods leads to increasing sensitivity to relative prices for agricultural commodities on the part of producers involved in exchange mediated by the market. It may lead to regional specialisation according to the principles of comparative advantage qualified by ecological constraints, and thus it may lead to increases in aggregate production. It is the exchange system which transmits the crucial price signals. Thus the first role of a marketing system is allocative.

Secondly in order to sustain non agricultural development, resources must be transferred from the agricultural sector - physical resources to guarantee supplies of food to non food controlling populations and raw materials to supply agro-industries; and financial resources which may be extracted via commodity taxation, via the terms of trade, and via the profits of trade. These are reallocated to private or public sector infrastructure, industry, commerce or agriculture. Thus

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the second role of a marketing system is extractive. Naturally the form and direction, the size and the pace of this transfer of resources is highly varies.

The State intervenes of its own accord and in responses to events in the world economy to modify the distribution as well as the mobilisation of resources. This applies as much to intervention in agricultural marketing systems as to other parts of the economy. In intervening in agricultural markets the role of the State is allocative and extractive in the ways explained above. By such interventions the State provides an arena of action, an arena which in turn interacts with, and reflects the actions of, a wider polity. In this study we shall examine the action of the State by the method of identifying the purposes which the activity serves (directly and indirectly) the justifications which are offered to legitimate the activity, and the assumptions, often implicit, by which implementers define their objectives and their actions. In this way it is hoped that we may build up an understanding of forces shaping policy at various levels of power and aggregation in the specific historical context of India. We may understand how policy is filtered and adapted from the Centre to the States, who in turn generate their own policy as well. This amalgam in turn is implemented and forms an arena of action in regions differing in their historical relations between production and exchange.

The study constitutes an attempt to improve our understanding of such actions with regard to the subsector of the sphere of exchange where the contradictions on the one hand between the nature of the physical traded surplus (reputed to be small, composed of small consignments and geographically highly scattered) and on the other hand the interventions of the State (characterised by large thresholds of capital and by high operating costs and high establishment costs) are particularly acute.

This subsector is that of rainfed food crops, most notably the coarse grains sorghum (cholam; jowar; sorghum vulgare) and millet (cumbu; bajra; pennesetum typhoideum). In Andhra Pradesh, sorghum contributes 15.6 per cent of national production of this grain and in Karnataka

18.1 per cent. The respective contributions for millet are 5.8 and 4.3 per cent (Bulletin on Food Statistics, 1976, p 14). While Maharashtra produces a greater share of sorghum (29.3) and Rajasthan of millet (23.7) (ibid) the first two States were selected for special study because they combined the attributes if importance in production, geographical contiguity which eased access to research material, and a variety of means of partial State intervention. Maharashtra is also included here since it has undergone monopoly procurement, not used as an instrument of intervention in the other two States.

We look at two forms of State intervention in marketing. On the one hand there is market regulation which seeks to control and standardise the private market in the direction of effective competition and at minimum cost to itself (Harriss 1980 a). On the other hand there is a bundle of measures comprising State Trading which seek to eliminate private trade partially or completely. Clearly the two types of intervention are in contradiction and where possible we shall examine the effects of the interaction of these contradictory interventions. In this paper we look at State Trading.

Introduction: Origins of state trading

In another working paper(Harriss 1980 a) we saw that State intervention with the objective of regulating the behaviour of the sphere of exchange operates in practice more as a fiscal mechanism than as a regulator. Resources transferred in this way support the State bureaucracy and fuel State and Central Government financial institutions. The lack of conspicuous success in purely regulatory performance may however be due not only to the structural factors mentioned previously but also in part to the further interaction between market regulation and other types of State intervention in the sphere of exchange and it is to these that we now turn. They are a motley bunch of rules and regulations, far from homogeneous in nature. It is possible however to detect a major contrast with those of regulatory intervention insofar as they constitute a series of monopolistic distortions to the operation of the free private

market*, at their least powerful in order to replace the private market completely. In conception these interventions are thus in apparent contradiction to regulated marketing.

There are further major contrasts between the two types of intervention in that while Market Regulation has been an arena of action of firstly provincial and later State legislatures, State Trading has evolved from and still involves interaction between State and Centre. The enactment of legislation for Market Regulation in the '30s occurred simultaneously with constitutional reforms which transferred much of the administration of agriculture to the provinces. However the supply shortages and famines of the War Years led to the realisation that price control and rationing could not be administered by Provincial Administrations. The Food Department was set up by the Central Government and advised by a Foodgrains Policy Committee in order to change the role of Central Government by adding power to its responsibility "to supply and distribute food". Stating that "laisser faire in the matter of food supply and distribution is impossible in the future" it controlled food supply by trading and storage, by rationing, by price control and by restrictions on movement. Central Government has constitutional power to over ride State legislation for food distribution (S.P.Singh 1973 pp 26-38). Nevertheless considerable variation in combinations of arrangements for State trading has occurred over the following quarter century not according to what is commonly dubbed ad hocism (Bhatia 1970, p 128; Gupta 1977) or expediency or "personal predilections of those in charge of the Food and Agriculture Ministry" so much as according to an apparent logic based on harvest size (Table 1). Forces and uncertainties of production clearly conditioned the nature of Central Government and State Trading operations.

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*In the whole of this section the words "free market" ought not to be interpreted as "perfectly competitive market" in the strictly neoclassical sense but refer "simply" to private markets operating with varying degrees of imperfection in more or less circumscribed conditions organised by the State. In this sense the whole concept of a dichotomy between "free" and "State" marketing institutions is severely ramified in practice however useful it might be as an analytical device.

Table 1 : Logic of State Trading

Production conditions	Market Symptoms	Interventionist Response
Bad Harvests	High Prices Short Supplies	Rationing Movement Restrictions Levies/Monopoly Procurement Imports Price control throughout distribution system
Good Harvests	Low Prices Abundant Supplies	Relaxation of rationing Fair Price Shop System Reduction of procurement Relaxation of movement restrictions Increasing size of movement zones
Very good Harvests	as above	Price Supportto Producers Exports

In 1957, the Foodgrains Enquiry Committee, set up to examine the causes of sudden increases in the prices of foodgrains affirmed the desirability of flexibility in State Trading operations. Though the first Plan had stated unequivocally that:

> "Food policy must ...be based on the assumption of a continuance of the condition of relative scarcity and strain in spite of a progressive increase in production"(Govt. of India 1957, p80; see also V.B.Singh 1973 p 26; Gupta 1977, p 109),

the Foodgrains Enquiry Committee noted that full control of food distribution was neither feasible nor desirable, that it:

> "should ordinarily be sufficient for the State to undertake open market purchase and sale of foodgrains as a regular measure, socialise part of the wholesale trade and operate a control over the traders operating in the rest of the market through a system of licensing, maintain a sizeable stock of wheat and rice and arrange for the regular imports of a certain quantity of rice and wheat"(Govt. of India 1957).

The provincial interventions of market regulation were to enable a transition to a "comprehensive network of marketing co-operatives" consistent with flexible partial intervention.

In operation, the period up to the mid '60s was one of chronic shortages, met by increasing imports of American PL 480 wheat. During the '60s these wheat imports came to make up 67-87 per cent of total foodgrains distributed through the public distribution system (Bhatia, 1970, p 137, p 167). Rationing and later Fair Price Shops selling foodgrains at subsidised prices were confined for the most part to the populations of large towns and cities, the target population being defined in relation to its dependence on the market rather than its purchasing power. The Public Distribution System fell between being the provision of relief and a regulatory force on the market(Gupta, 1977, p 61-76) and

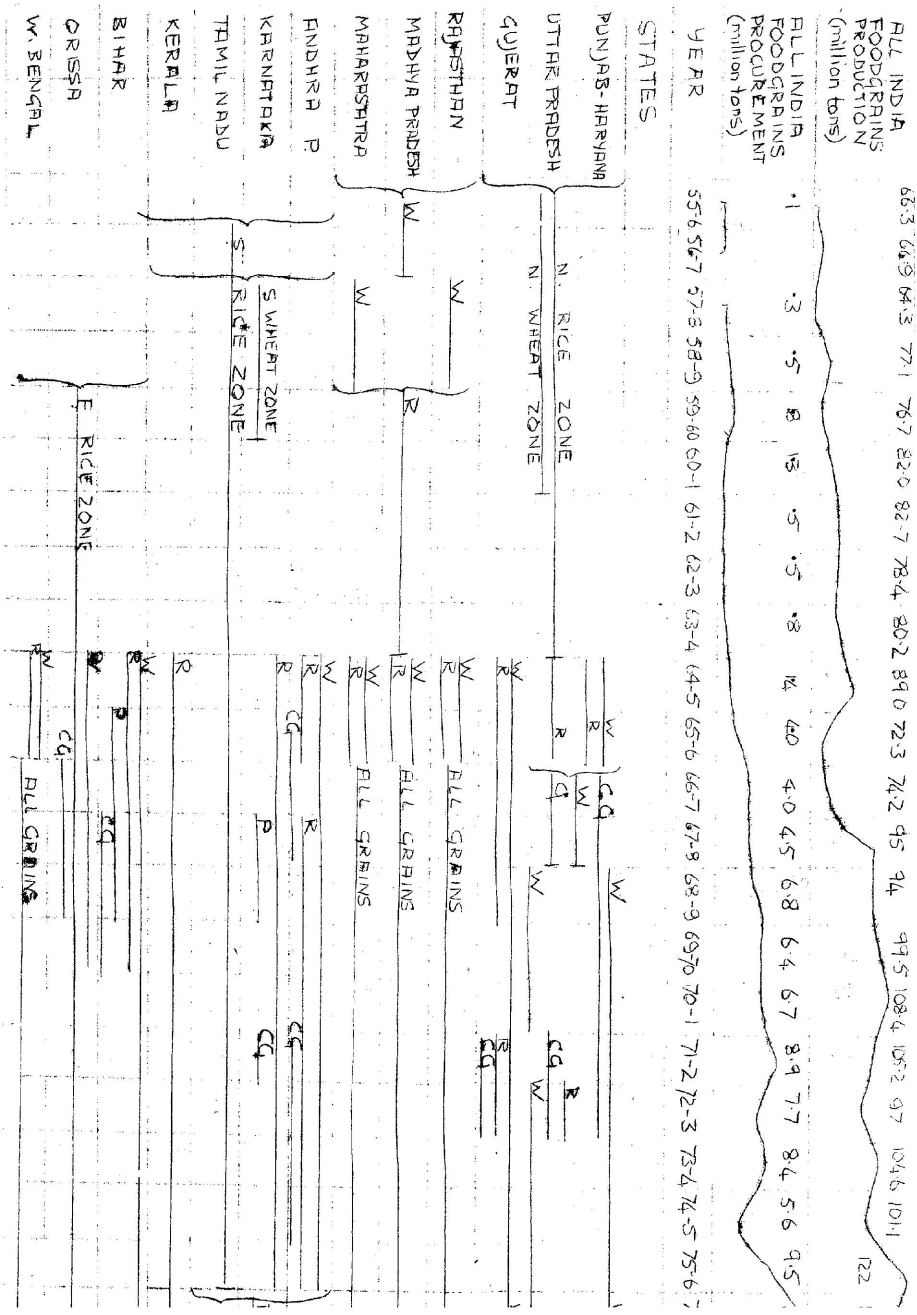
> "Contradictions brought about in the policies by the Government's wish to keep a check on the price level" (to producers)"its desire to protect the economically vulnerable sections of the population, the desire to cut down...subsidies...and to keep a public distribution system running with its major coverage confined to urban areas were never fully appreciated"(op.cit.)

The conflict of interest between Centre and States was maintained. While the Centre fixes procurement targets, the States have final discretion over the precise form and modus operandi of procurement operations. This has created a considerable variety of permutations and combinations of policies as evinced in the diagram compiled by von Oppen (1978; reproduced here as Diagram 1; see also Nadkarni, 1973, p174). At present sorghum is traded by the State in the following manner: in Karnataka and Rajasthan there is a levy on producers; in Madhya Pradesh and Uttar Pradesh a 50 per cent levy from licensed dealers, in Andhra Pradesh intermittently there is both; and in Maharashtra there is monopoly purchase at fixed prices(Govt. of India, 1975, p 20, pp 4-6).

State Trading by Corporations was opposed by the 1957 Foodgrains Enquiry Committee on the grounds that it would "create vested interests"

DIAGRAM 1: ALL INDIA PRODUCTION AND PROCUREMENT OF FOODGRAINS AND STATEWISE SUMMARY OF FOOD POLICIES INVOLVING TRADE RESTRICTIONS FOR FOODGRAINS

(Restrictions on W= wheat; R =rice; CG= coarse grains; P =pulses)
Source: von Oppen 1978



and delay the transition to co-operative control of distribution (S.P.Singh, op.cit., p 112). Returns from productive or necessary commercial activities would be directly absorbed by the State apparatus rather than divided between co-operative members with implications for the direction of investment of resources appropriated from producers. In the same way, direct control over commodity prices was regarded in 1957 as infeasible given insufficient information about price parities between commodities, price elasticities and cross elasticities of substitution. There was doubt, to use Lipton's felicitous phrase, about the State's ability to manipulate prices in order to fine tune the economy (1977, ch 13). Nevertheless in 1965 a monopoly trading corporation, the Food Corporation of India, and an autonomous decision making body, the Agricultural Prices Commission, were set up, followed by the establishment of autonomous State owned trading and warehousing corporations.

The proximate political reasons for this development are most likely to be i) a reaction against reliance on imports of American PL 480 grain as well as imports from Pakistan, Thailand and Cambodia, which by the mid '60s were coming to dominate the public distribution system (see Nadkarni, 1973, p 183) and

ii) the manifest failure of the market mechanism at times of crisis, evinced by serious regional or national shortfalls in production and rocketing prices.

This expansion of State activity to incorporate the "strategic heights of the foodgrains trade" was intended to bring food price levels into the definitive orbit of State control. It marks a change in the interventionist strategy away from principles of flexibility (as explained in Table 1) resolving the contradictions over prices and supplies in the clear direction of a non market distribution system.

We shall pursue the further contradictions generated by these interventions in some detail in this paper, but before launching into this we should note the existence of one further contradiction: that between on the one hand the concentration by State intervention in agricultural production on "certain crops" (wheat and to a lesser

extent rice) "certain areas" (those with assured water supply) and "quick return activities" (package programmes to progressive farmers) ably analysed by Rudra (1978, pp 381-4); and on the other hand the State's obligation to secure food supplies and to distribute food throughout the Union in which neglected coarse grains figure in the dietaries of at least 60 per cent of the Indian population, overwhelmingly rural (Bapna, 1976).

It is the dialectic between Central Government power and State power; between State and private market; between regulatory market intervention and monopoly non market intervention; between neglect in production and obligation in distribution that motivates the following discussion.

The relatively small body of literature on the subject, reflecting the concentration of activity, is oriented towards wheat and rice, and tends to be couched at a national level of aggregation. Where possible we shall reverse the crop bias and we shall look at State activity using 4 States, Maharashtra, Tamil Nadu, Karnataka and Andhra Pradesh as case studies but we shall concentrate on the last two.

Price policy for coarse grains

Public pricing policy is highly problematical. Firstly, other things being equal, fluctuations in free market prices reflect price inelastic supplies, a type of market behaviour tending to stabilise incomes to producers. This behaviour destablishes expenditure of consumers if demand is similarly price inelastic, notably the case with coarse grains (Bapna, 1976, p 24). Price policy designed to stabilise price fluctuations therefore destabilises the incomes of producers as it stabilises consumers' expenditure. The net direction of such destabilisation depends on the relation between State administered prices and market prices. Secondly higher producer prices relative to inputs, or relative to non agricultural consumption goods may protect supplies and guarantee availability but leads to a long term inflationary cost push when food is the basic wage good, and faces the contradiction of low effective demand from the vulnerable group supposed to be protected by such supplies. Increasing the effective demand of disadvantaged

target groups may involve the diversion of State funds to subsidise consumer prices. By contrast, low producer prices relative to inputs and relative to non agricultural consumption goods protect consumers but dampen price incentives to produce, shift adjustments in supply to regions or countries outside the orbit of the policy (Grennes et al, 1978, p 16), require clamps on exports and access to inter regional / international imports and are logically ungeneralisable. Thirdly high procurement prices relative to market prices may be taken advantage of by intermediaries rather than by producers, whereas low procurement prices relative to market prices involve at best distortions to "free" market prices (Harriss, 1977 a and b) and at worst extortion and coercion from producers, and black marketing (see Panikulangara, 1976). Fourthly the establishment of price parities between crops either covered by various types of price policy, or left to the influences of the market, crops whose supply response to price varies and is not able to be fine tuned, is not only very difficult but automatically forces the expansion of State control because of the exigencies of crop specific buffer stock operations, storage, transport and distribution facilities (see S.P.Singh, op.cit, p 110, pp 160-1). This involves in the Indian historical case a delicate co-ordination between Centre and States.

> "With reference to the stability of agricultural prices, the Centre and States have to effect strategic open market operations in food stocks and other agricultural produce in order to even out the fluctuations in prices. Since the stocks have to be built by procurement or purchases from the surplus States or through import, Central management of the overall scheme based on the acceptance of the principle of national sharing by the surplus States is essential. This in turn requires building up of an organisation capable of purchase/procurement and sale of a sizeable quantity of foodgrains, season after season.... The success of the operational strategy is based on the assumption that the discipline of a national food budget is abided by all the States and the procurement machinery, including marketing co-operatives, Food Corporation or State procurement machinery function effectively.... and counter resistance from the big producers" (Singh, op.cit., p 160).

If such expansion does not occur it must be due to politically expedient compromises. Lastly changes in publicly administered prices are sticky downwards (Patnaik, 1975; Narain 1976). They exert a ratchet effect. Empirically (using Indian data for the mid '60s) and in terms of neoclassical theory Mellor has demonstrated that foodgrains price rises provoke disproportionate income adjustments amongst the poorest deciles of the population (1978, p 3; footnote on p8) including small producers of grains because they are net purchasers of foodgrains.

> "If a foodgrain price increase is seen as a simple transfer of income from consumers to producers it largely takes place between high income consumers who expend the largest amounts on food to high income producers who market" (according to the statistics used by Mellor)" the largest absolute quantity" (op.cit. p13-15).

Trapped in so many very obvious contradictions, the precise historical outcome for any crop represents the nature of the social forces operating in that arena. We shall examine firstly the decision process for procurement prices for coarse grains of the Agricultural Prices Commission, then independent evidence of their relation to costs of production and to market prices.

The decision process of the Agricultural Prices Commission

This Commission was conceived as an advisory organisation to an autonomous price stabilisation board which would incorporate the recommended prices into logistical plans for the State trading parastatal institution. It is well documented that with respect to wheat and rice, both Central and (more usually) State Governments process latitude to ignore the APC's recommendations and to reflect the power of the farm lobby by raising official procurement prices above those set by the APC. This does not ever appear to have been done by any State Government with respect to coarse grains and the APC's recommendations are undistorted.

The APC justifies its treatment of price setting for coarse grains as a group differently at each annual decision point. One

negative may be established. The criterion for price fixing is never the ruling farm harvest price. "This would lead to continuous escalation of guaranteed prices and commit Government to large purchase responsibilities" (A.P.C.1965, p2).

Some price parity is maintained. Coarse grains prices never rise above that for coarse paddy and indeed, since State Governments tend to raise paddy and rice prices unilaterally each year, are usually several rupees lower. Unilateral action taken at the level of the States for fine grains in 1973-4 was invoked as a reason for not increasing procurement prices, including those for coarse grains, in 1974-5 (A.P.C. 1874, p8-9). Cost of production data for paddy, sorghum and millet from case study surveys in a total of 7 States in 1971-2, 3 States in 1972-3 and 1 State in 1974-5 were examined and extreme data rejected before price fixing at 1973-4 levels in 1975-6 (A.P.C., 1975, p 8) at a time of massive general inflation when such cost of production data were rapidly outdated (Patnaik, 1975). Changes in the prices of agricultural inputs were also examined in 1975-6. For 1976-7, the destabilising and inflationary effects of changes in procurement prices on the general index of wholesale prices was invoked for maintaining the 1973-4 level (A.P.C., 1976, p9). This level was described as a support price (p 11) though from 1973-6 published free market prices for sorghum never sank to this level while millet prices dropped to the support price for 3 months in Rajasthan (where there was no procurement of millet) 2 months in Haryana and 3 months in Maharashtra (where the existence of procurement machinery did not stop the millet prices from dropping to Rs.65 per quintal for one month in 1976)(A.P.C., 1976, pp 21-24). The dropping of wholesale prices to below support prices does not necessarily benefit consumers

> "because violent fluctuations in prices adversely affect production and because short supply adversely affects consumers. Financial constraints operating on consumers in lowest deciles prevent them from fully exploiting the speculative advantages of low prices" (Gupta 1977, p 57; Chauhan and Srivastava, 1974).

For 1977-8, having assembled evidence showing that all market prices had exceeded the support price during the past year, and when the

procurement record was substantially criticised, the APC doggedly fixed prices at 1973-4 levels (APC, 1977, p 9).

With respect to price fixing we are forced to conclude a) that it is not determined systematically with respect to any data, b) that price fixing for sorghum and millet has increased in its crudity of treatment through time.

Procurement prices and production costs

Krishnaji (1975, p 85-6) has drawn attention to the higher official rate of return to costs of production afforded to wheat than to rice by the official system of procurement.

> "The differences persist in the rates of return per hectare even after making allowance for possible differences in the yield rates of the two crops"

Such price levels he interprets as being both a concession to and a factor furthering the entrenchment of the regionally and nationally powerful wheat lobby.

Table 2 shows some cost of production data from Tamil Nadu (Sampath and Ganesan, 1972) Karnataka, Andhra Pradesh and Maharashtra (Rastogi, 1977, 1979; Patil et al 1979) and shows corresponding official purchase prices for sorghum and millet. It is clear that both for improved and traditional systems of cultivation these costs are highly variable but that official prices represent a far lower rate of return than for rice or wheat (Krishnaji, ibid), it being increasingly unprofitable to sell to the State using traditional production technology. Krishnaji reasons that the lower official rates of return to costs of production for rice evince lack of lobbying power. This would be even more striking for producers of coarse grains. We are forced to conclude that sorghum and millet have never been considered as deserving of price incentives.

Procurement price levels

Official price discrimination against coarse grains emerged in the first quinquennium of operation of the APC. Whereas the ratio

Table 2: Costs of Production in Relation to Procurement Prices

State of case study	Year	Crop	Total cost/q (Rs)	Total cost (D) per q	Official Procurement Price Rs/q	Return/q (Proct Pr minus cost D)	Source of cost of prodn data
Tamil Nadu	1971	Sorghum (trad)		55.3	63	+ 7.7	Sampath+ Ganesan 1972
	1971	millet (trad)		39.5	65	+25.5	
	1971	HYVsorghum		33.6	63	+29.4	
	1971	" millet		23.0	63	+42.0	
Karnataka	1973-4	sorghum (trad)		73-78	70	-3.0 to -8.0	Rastogi 1977
A.P.	1973-4	"		142-169	70	-72 to -99	
Maharashtra	1973-4	"		117	70	-47	
Karnataka	1973-4	millet (trad)		92.8	72	-20.8	
A.P.	"	"		56.4	72	+15.6	
Maharashtra	"	"		104	72	-32.0	
Karnataka	"	sorghum (improved)		48.4	70	+21.6	
A.P.	"	"		27.7	70	+42.3	
Maharashtra	"	"		84.7	70	-14.7	
Karnataka	"	millet (improved)		75.4	72	- 3.4	
AP	"	"		19.1	72	+52.9	
Maharashtra	"	"		10.4	72	+61.6	
A.P.	1976	sorghum (trad)	178.5	108	74	-34	Rastogi, 1979
"	"	millet (trad)	542	337	74	-263	
Maharashtra	"	sorghum	89.4	51.7	74	+22.3	
Maharashtra	1976	sorghum (trad)	151	98.5	74	-24.5	Patil.et al 1979

Cost D excludes from the total cost the imputed values corresponding to rent on owned land and interest on owned fixed capital (excluding land) but includes the imputed value of family labour.

between sorghum and standard varieties of wheat was 1.01 in 1965 when the sorghum procurement price stood at Rs.38, by 1970 it was 0.78 though sorghum prices had been raised to Rs.44 (data in Nadkarni, 1973, p 193). In 1973-4 procurement prices were raised from the level at which they had stood for three years - Rs.63 - to Rs.70 per quintal for sorghum and from Rs.65 to Rs.71 for millet. The new prices were 87.5 per cent of the issue (retail) price in the former case and 90 per cent in the latter. In late 1974 these procurement prices were raised and levelled to Rs.74 per quintal (86 per cent of the issue price) for both crops (APC, 1975). There is now no refinement between crops or for variety within crops in contrast to the 4 grade classification for rice and paddy. Similarly there is no regional differentiation made in procurement prices.

A study of the differences between official prices and the average annual market price for the 4 case study States shows that these are far higher for sorghum and millet than for paddy and rice (Table 3). Examination of the monthly price data appended to its seasonal reports by the APC further reveals that the procurement price is a minimum support price set at a level below which prices very rarely actually fall. This discrepancy is increasing.

Table 4 giving All India price indices for foodgrains, all agricultural commodities and all commodities from 1965-76 shows that free market prices of coarse grains are rising in time at a faster rate than those for other staple cereals, or for the general agricultural price level (which includes conventional cash crops) and for the general price level. Gupta, fitting trend equations to the All India yearly price indices of the 5 major foodgrains for this period 1963-75, obtained the following results:

$$\text{Rice Price} = 77.09 + 16.85\,T \qquad R^2 = 0.85$$

$$\text{Wheat Price} = 86.16 + 15.63\,T \qquad R^2 = 0.77$$

$$\text{Sorghum Price} = 82.52 + 17.15\,T \qquad R^2 = 0.77$$

$$\text{Millet Price} = 69.62 + 16.26\,T \qquad R^2 = 0.68$$

$$\text{Maize Price} = 73.1 + 20.05\,T \qquad R^2 = 0.65$$

(T = statistically significant at 1 per cent level of confidence for all equations)
where T = Time trend variable

Table3: State Procurement Price as a Percentage of Average Annual Wholesale Market Prices

		Paddy		Rice		Sorghum		Millet
		coarse	fine	coarse	fine	coarse	fine	
Andhra Pradesh	1973-4	87	102	85	95	68	67	76
	1975-6	69	75	66	71	51	n.d.	60
Karnataka	1973-4	75	67	58	62	44	43	n.d.
	1975-6	65	55	65	49	49	43	n.d.
Maharashtra	1973-4	116	n.d.	n.d.	n.d.	n.d.	n.d.	47
	1975-6	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	53
Tamil Nadu	1973-4	n.d.	n.d.	n.d.	n.d.	82	n.d.	82
	1975-6	n.d.	n.d.	n.d.	n.d.	44	n.d.	44

n.d. = no data
Source: data from G.O.I. 1976 Bulletin on Food Statistics, Delhi

Table4: All-India Price Indices (1960-1=100)

	1965	66	67	68	69	1970	71	72	73	74	75	75-6
Rice	129.9	160.5	197	200.1	193.8	201.2	201.8	222.8	265.2	353.2	372.6	354
Wheat	150.9	161.6	214.5	204.6	209.1	214.5	206.2	215.8	225.1	304.4	353.1	334
Sorghum	169	166	197.5	185	190	188.9	204.9	233.3	282.3	371.3	373.7	365.2
Millet	152.4	159	188.6	176.8	189.9	168.3	143	202.2	265	336	379.3	314.2
All Agl. commodities	138.8	158.2	188.2	179.6	189.4	202	199.3	211.4	263.6	339	330	311
All commodities	128.9	144.3	166	165.3	168.8	179.2	186.1	200.7	239.3	303.9	309.1	303

Source: G.O.I. 1974, 1976 Bulletin on Food Statistics

Prices thus rose faster over the period for maize and sorghum than for other foodgrains, most especially wheat (Gupta, 1977, pp 53-55) and have come recently to surpass the fine grains in absolute price levels (Bapna 1976, p 19). This suggests a need for coercion should the State wish to procure coarse grains at its administered price.

Fluctuations in the general level of price increases, interpreted from the co-efficient of multiple determination (R^2), suggest that

> "fluctuations were relatively greater in the case of coarse grains than in the case of finer cereals" (Bapna, ibid)

This behaviour Gupta attributes to lack of State intervention in procurement, storage and movement restrictions(op.cit. p 55-56). The same conclusions about the deleterious effects of lack of intervention on regional price behaviour was drawn from an analysis of co-efficients of price variation for annual average foodgrains prices across States through time by the National Council for Applied Economic Research (1969 and see Table 2 in working paper 4). This deterioration in regional and temporal imperfections has serious implications for consumers of coarse grains - the landless and small producers who may purchase on the market over half the grain they consume (Patnaik, 1975, p 35), and who if selling post harvest and repurchasing before harvest in a context of increasing intraseasonal price fluctuations actually face different agricultural/non agricultural terms of trade than do farmers who may store and speculate, a mechanism exacerbating rural differentiation (Gore, 1978).

That this deterioration has resulted from insufficient State intervention has been asserted recently by the Agricultural Prices Commission. "Foodgrains are by no means perfectly substitutable". According to the A.P.C. the State, through the mechanism of its control over inventory, can determine the levels and the gradients of change through time and space of "free" market prices only in those crops for which it holds stocks (1977 a; see also F.C.I.1972 and Prasad, 1979, p 75, for strong claims by Central Government and parastatals to this effect). The APC, responsible for price fixing,

alleges that it is lack of such a price controlling mechanism for coarse grains and pulses that has allowed the prices of these crops to change price relationships with crops conventionally considered "superior". Hence the APC has argued that the State should increase its level of direct intervention.

Some potential topical importance is therefore attached to the assumption about price underlying State trading, in particular that a single support price fixed nationally is an effective instrument of procurement, in the effort further to stabilise markets whose price behaviour is in any case supposed to be made progressively more integrated and competitive by Market Regulation.

Furthermore State trading in an open market posits the existence of the equilibrating mechanism of an effectively competitive market within which the State can act institutionally as a progressive monopoly force. We shall again take Karnataka and Andhra Pradesh as case studies with which to examine these assumptions using data, problems with which have been discussed elsewhere (Harriss, 1980).

Methodological background in this analysis of price behaviour

Prior to our analysis of evidently imperfect market behaviour we also need to recapitulate briefly our methodological analysis (Harriss 1980 b). Because of their obsessive concern with perfect competition, few analyses of market performance do not assume a unidirectional flow of goods from a rural origin to an urban destination in response to price formed at the point of final transaction.

Timmer, in criticising this assumption in a paper on rice marketing margins in Indonesia suggests firstly that, while retail prices in urban centres may be determined by paddy prices plus marketing costs in the post harvest period; in the pre harvest period, off season rises in urban retail prices may draw paddy from rural areas. According to Timmer it is not correct to regard any one price as necessarily always functionally dependent upon another as is done in all standard neoclassical texts on marketing economics (e.g.Shepherd and Futtrell, 1969; Kohls, 1968; Tomek and Robinson, 1972).

He further suggests that in a model landscape with a rural "producer market" and an urban "consumer market" prices will rise seasonally to reflect the normal costs of storage. At a certain point, however, it may level out. This happens in Indonesia because of the operation of a Government ceiling on retail rice prices (and presumably sufficient authority to control a black market). It may however happen in any free or partially controlled market at a point at which it becomes profitable to import supplies from elsewhere. Meanwhile rural hinterland prices rise to cover storage costs. So long as rural demand is significant rural prices will rise to a point where it is profitable to ship rice back from urban to rural areas. The margin between the rural and the urban price can be zero or negative or it may simply be less than the post harvest margin for the simple unidirectional model to be invalidated.

Timmer tested his hypothesis by applying a regression analysis of variance to quarterly subsets of monthly price data for every province of the Indonesian archipelago and found price relationships as explained in his model (1974; see also Harriss 1980b for a fuller discussion).

The unidirectional model of price formation seems to have been taken for granted in Southern Asia and is an assumption underlying the calculation of official support prices. However detailed analyses of the patterns of behaviour of weekly data for 5 types of paddy and rice wholesale prices in 10 towns over 100 weeks in 1972-4, and of their relationships to marketing costs in South India showed that Timmer's explanations are substantially supported (Harriss, 1977 a, pp 163-192). Price levels for rice and paddy in the larger consuming centres of Tamil Nadu can and do fall below those of rural market towns both in a regular seasonal way over several weeks at a time and in an uncertain way partially attributable to changes in the percentage of exports levied at artificially low prices by the State.

Colman in a study of regional price variations for food and feed grains in the U.K.(1972) also has corroborative results, independently identifying regional seasonal price variations and reversals, stable from year to year, in the economic and spatial markets for wheat and barley.

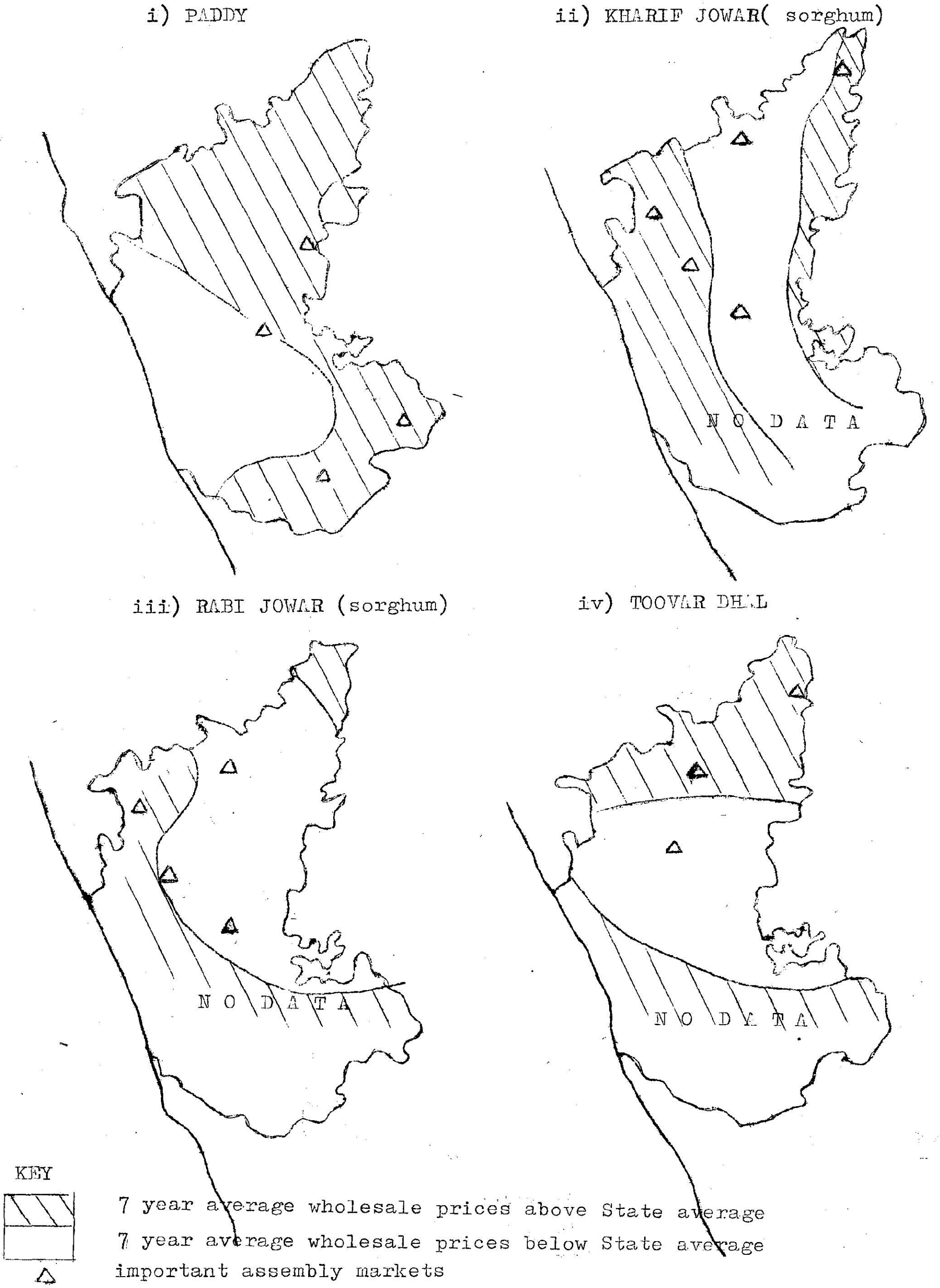
The mechanism by which these patterns emerge indicates imperfectly competitive performance. If a region keeps its own price levels lower than those in other regions by importing grain from areas outside the local system which have lower costs of production or have different periods of post harvest gluts and price slumps; if the urban price level is sufficiently low to enable rice to be exported to rural areas; and if these rural areas cannot import directly from the lower cost exporters located outside the region; then the region or the urban centre has a spatial monopoly control of trade.

We can therefore examine regional price patterns for their levels and gradients using an index which, like the coefficient of variation, has the property of direct comparability between commodities. This is the deviation of long term average commodity prices in individual markets from the average price for the State, expressed in percentages of a standard deviation. We shall also plot the spatial distribution of seasonal price behaviour to investigate the possibility of seasonal price reversals between intermediate producing and consuming centres.

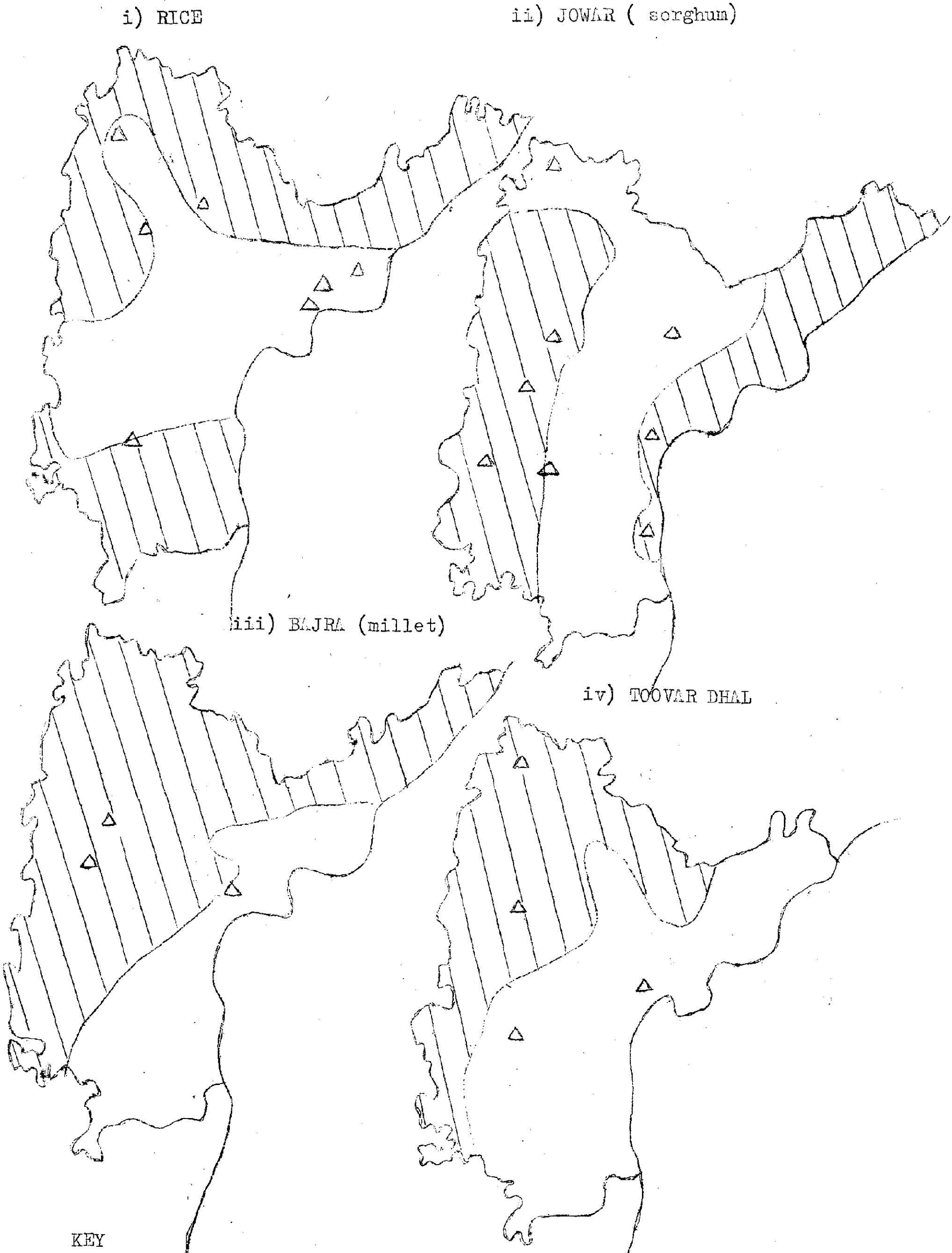
Spatial patterns in imperfect commodity markets in Karnataka and Andhra Pradesh

Seven year and 11 year average prices were computed for coarse grains, toovar dhal and paddy/rice in the sets of markets described in Harriss (1980a). The averages were expressed in percentages of a standard deviation from the average for the State as a whole. These deviations have been plotted in Maps 1 and 2 and characteristics of the price distributions are appended in Table 5. Though price distributions are neither extreme nor markedly skew, nevertheless the price range far exceeds that of transfer costs and transport costs. Price gradients are highest in the case of rice. We hypothesise that an unintegrated market would have no spatial pattern in the levels of its prices. The Maps and Table 5 show that the marketing systems certainly do not approximate a spatial equilibrium mediated only by transfer costs. But the disequilibrium is not randomly distributed through space.

MAP 1: SPATIAL INEQUALITIES IN COMMODITY PRICES, KARNATAKA



MAP2 :SPATIAL INEQUALITIES IN COMMODITY PRICES, ANDHRA PRADESH



KEY

(hatched) 10 year average wholesale prices above State average

(blank) 10 year average wholesale prices below State average

△ important assembly markets

Table 5: Characteristics of Price Distributions in Maps 1 and 2

	Deviations from mean in % standard deviation highest	lowest	Skew	% observations >1 standard deviation	gradients
Karnataka					
Paddy	169	-160	0.44	31	medium
Kharif sorghum	220	-147	0.63	30	"
Rabi "	148	-148	0.43	43	low
Toovar dhal	175	-120	0.36	50	"
Andhra Pradesh					
Rice	202	-171	0.21	26	high
Sorghum	164	-239	-0.57	35	medium
millet	133	-239	-0.30	31	high
Toovar dhal	111	-311	-0.50	27	medium

Table 6: Correlation Co-efficients for Prices

Correlation for av. price 1968-75 and:-	Karnataka Paddy	Kharif sorghum	rabi sorghum	Toovar dhal
av.production	-0.5	0.2	-0.3	0.82
av.area	-0.5	0.4	-0.29	0.79
av.arrivals at Regulated Markets	-0.3	-0.24		n.d.

Correlation for av.price 1965-76 and:-	Andhra Pradesh Rice	Sorghum	Millet	Toovar dhal
av.production	-0.5	-0.05	-0.35	0.08
av.area	-0.47	-0.07	-0.44	0.07
av.arrivals at Regulated Markets	-0.3	-0.10	-0.29	0.002

All the commodity markets show clear regional patterns of inequality in wholesale prices. There is some similarity between the regional patterns for sorghum and toovar dhal in Karnataka and between those for rice, millet and dhal in Andhra Pradesh. On the one hand these patterns severely qualify the value of a uniform national support price in each commodity market, but on the other suggest that regional refinements in such prices ought to be manipulable.

Our attempts to explain reasons for the existence of these patterns are not very convincing. The correlation coefficients in Table 6 demonstrate the lack of explanatory power of data on production or on market arrivals/to account for these regional patterns; and the statistically more significant but nevertheless still rather weak and contrary explanatory power of data on acreage. It is fairly clear that low post harvest price regions coincide with major areas of production in both States for rice, the most commercial crop, and in Andhra for millet. However in Karnataka, regions specialising in the production of toovar dhal are high price regions. There is no relationship between regional patterns of specialisation in sorghum production and the price regions. Nor is the pattern explained by the existing data on the distribution of marketed surplus. The most important wholesale assembly markets (according to respective marketing departments' data on arrivals) have been located on the maps. They are as frequently in low as in high price regions.

All we can suggest at this stage is that since production variables lack explanatory power we must rather seek "residual" explanations in the operation of the marketing systems themselves. However it would be wise to avoid concluding that producers in high price regions/necessarily benefit, and that/high wholesale prices squeeze the distributive margin. Referring to Table 5 in Harriss (1980a) and the maps of price regions for Andhra Pradesh we see that the village seller's share of the local urban consumers' rupee is lowest in Telengana where average wholesale market prices are on the whole highest. This is indicative of monopoly power over rural sellers of urban traders.

Seasonal spatial patterns in commodity price behaviour

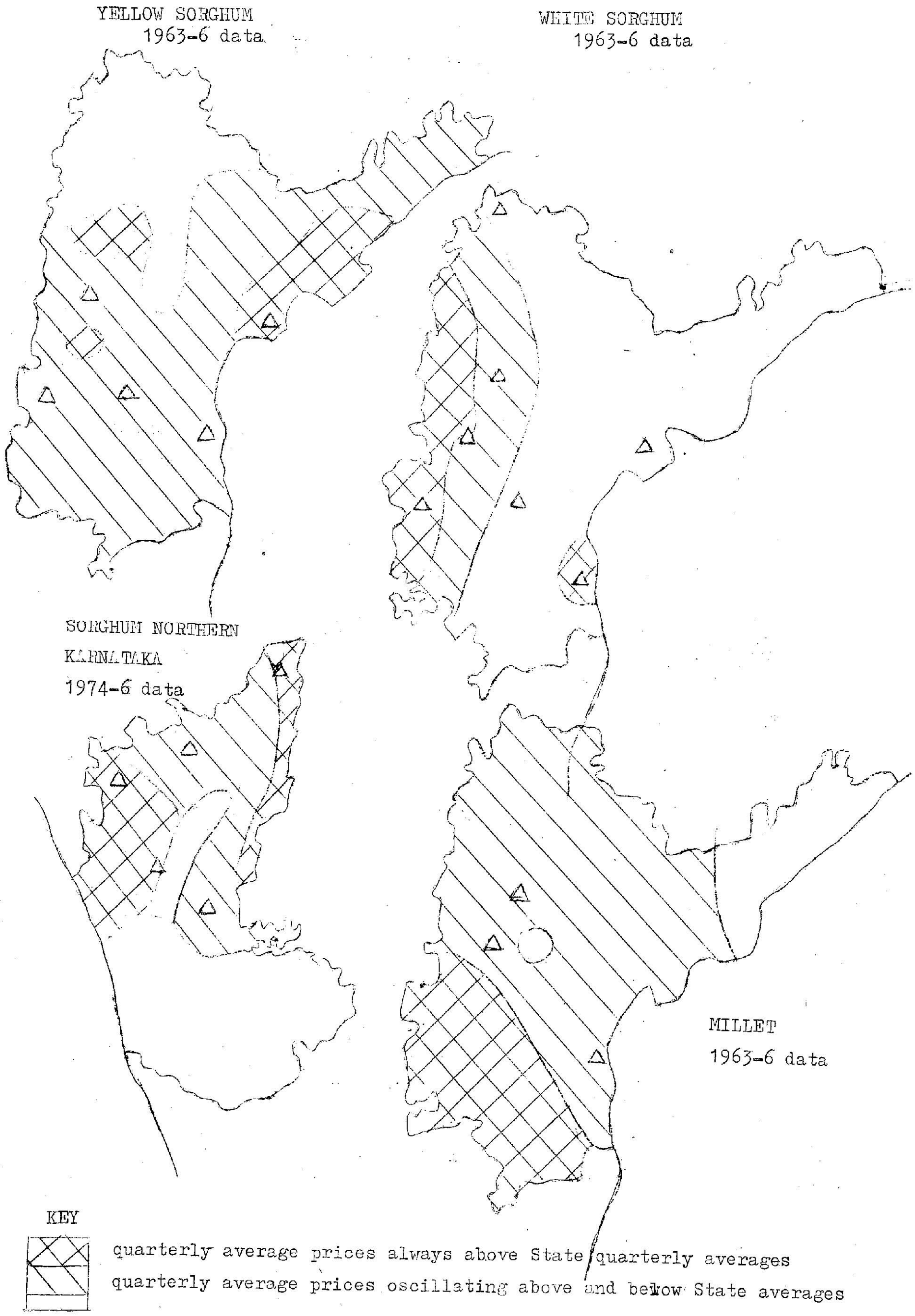
It was possible to calculate two year quarterly averages (after the manner of Timmer, 1974) for sorghum markets in Northern Karnataka for 1974-6, and 3 year quarterly averages for yellow and white sorghum and for millet for Andhra Pradesh for the years 1963-6. There is thus a decade of difference between the two States' data sets. Markets were then grouped according to whether their quarterly prices exceeded the quarterly average for the State all the time, whether they were always less than the respective quarterly average or whether prices fluctuated irregularly above and below the average. The groups were then plotted in Map 3.

There are clear regional patterns of seasonal price behaviour. In Northern Karnatake, the western region and eastern extremity is high, the thin central swathe is low and the intermediate irregular zone flanks both. In Andhra Pradesh for yellow sorghum, the northern region is low, major centres of consumption are high and the south is intermediate; for white sorghum the western tract and Nellore, a consuming centre, are high, a central swathe behaves irregularly and the bulk of the State is uniformly low; while for millet, the sourthern region is high, the central area is irregular and the north east is low.

How stable is this set of patterns? Comparison of Map 3 which represents a detailed subset of years with the relevant parts of Maps 1 and 2 which are based on longer time series data show that it is likely that these regions, like Colman's food and feedgrain regions in the U.K., are fairly stable.

The commodities mapped are overwhelmingly rurally consumed (Bapna, 1976), hence one would not expect a single centre of consumption to be a price base in the manner simulated by Timmer for towns and hinterlands on islands in Indonesia. Here sets of markets with consistently higher or lower prices cover about as much territory as do sets of markets characterised by seasonal price reversals. We have seen how little such market characteristics can be explained by conventional data on production. It is reasonable to assume that explanations for these patterns are to be found in the structure and behaviour of the marketing

MAP 3: SEASONAL PRICE BEHAVIOUR



systems themselves. Seasonal instability in producer prices introduces an additional element of inequality to that of regions. This instability also implies limits to the geographical flexibility of flows equilibrating supply and demand according to seasonal and regional production and / or some degree of monopoly control of trade and storage.

Implications for price policy

Finally older N.C.A.E.R. analyses of coefficients of variation of prices at the level of the State corroborate detailed and recent studies of Karnataka and Andhra Pradesh to show that there is little difference in price behaviour for those crops in which State control of price, supply and stocks is substantial (rice constitutes 46 per cent of all grains traded by the State) between fine grains, and coarse grains in which the State has less control (see Tables 7, 8 and 9). In Karnataka and Andhra Pradesh, the coefficients of price variation for paddy/rice are generally very slightly lower than for those crops in which the State trades little but analysis of variance showed these differences to be without statistical significance. The aggregate evidence presented here provides little historical support for the ability of these forms of action by the State to control the behaviour of wholesale prices in the direction of greater stability.

From these studies we may conclude that these imperfectly functioning commodity markets behave with some seasonal and regional regularities in the manner described by Timmer for a town and its hinterland and observed empirically in the U.K. by Colman and elsewhere in India by Harriss. That this is probably so casts doubt on the practicability of the State's administering static procurement prices that are determined nationally, or even State-wise, in a market left to function "freely", that is imperfectly. It is also evidence that the refinement often advocated in procurement policy (see Subbarao, 1978, a, p 13 for instance) that procurement prices "should rise from harvest months to off season months" would also face problems in implementation and would not necessarily increase State procurement where this necessitates a close relation between official prices and market prices (see forward also to the discussion of levies).

Table 7: Co-efficients of Price Variation, Karnataka State

Crop	Paddy	Kharif sorghum	Rabi sorghum	Toovar dhal
No. of markets	18	13	9	13
1968-69	6.5	8.0	4.5	25
1969-70	12.7	10.0	7.3	16
1970-1	8.6	14.2	6.1	13.6
1971-2	6.8	11.7	7.4	17.1
1972-3	14.8	11.5	11.4	15.4
1973-4	14.4	14.8	12.7	17.8
1974-5	12.1	19.3	6.9	n.d.
Average 1968-75	7.8	7.9	7.0	8.7

Source: Annual Season and Crop Report data (unpublished)

Table 8: Co-efficients of Price Variation, Andhra Pradesh

Crop	Rice	Sorghum	Millet	Toovar dhal
No. of markets	21	18	17	17
1965-6	13.7	8.5	11.7	15.9
1966-7	14.7	8.8	12.5	14.3
1967-8	15.1	5.4	10.2	13.3
1969-70	10.9	10.7	10.0	10.2
1970-1	9.2	13.9	10.4	5.9
1971-2	7.6	12.5	8.8	7.3
1972-3	9.3	10.9	9.1	8.2
1973-4	10.9	11.1	10.7	4.4
1974-5	12.2	10.1	n.d.	4.9
1975-6	12.2	11.6	11.1	17.4
Average 1965-76	6.6	10.7	5.4	9.7

Source: Annual Season and Crop Report Data

Table 9: Co-efficients of Variation of Average Annual Wholesale Prices

	(1) Sorghum	(2) Gram	(3) Rice	(4) Wheat
1952	19.2	13.1	20.1	16.7
1953	22.6	12.2	17.1	13.1
1954	12.8	14.2	14.9	11.5
1955	16.8	12.0	12.6	8.4
1956	16.9	10.0	8.3	5.6
1957	21.2	6.9	9.4	8.4
1958	16.6	11.2	14.9	11.5
1959	8.2	10.5	16.2	13.4
1960	12.9	5.8	14.4	12.4
1961	10.6	5.9	13.5	10.7
1962	10.8	6.2	11.2	10.7
1963	12.5	4.5	13.6	10.7
1964	16.3	12.1	8.7	18.1
1965	26.7	23.5	12.6	23.8

(1) A.P.; Maha; Guj; M.P.; T.N.; Pu; Kar; Raj ; U.P.

(2) Bih; Guj; M.P.; Pu; Raj; U.P; W.B.

(3) A.P.; Ass; Bih; Maha; Ker; Karn; M.P.; T.N.; Pu; U.P.; W.B.

(4) Bih; Guj; M.P.; Pu; Raj; U.P.; W.B.

Source: tables from NCAER 1969 "Structure & Behaviour of Prices of Foodgrains" Delhi pp 100-104.

Furthermore our analyses of the relationship between public procurement prices and "free" imperfect market prices shows very clearly that the price supportive role of the State intervention is totally irrelevant for coarse grains in Karnataka and Andhra Pradesh and almost certainly for all but a few months occasionally in Maharashtra (though with monopoly procurement in force in Maharashtra the sorghum market is "black"). It must therefore be concluded that State procurement of such grains involves a set of more coercive relationships with producers and traders than does State procurement in wheat and rice. To the procurement record it is now appropriate to turn.

Procurement record

At its inception the A.P.C. declared

> "Whatever the policy regarding interstate movement, the Government should attempt to acquire 15 to 25 per cent of the marketable surplus every year ....to keep the Fair Price Shop system going at the minimum required rate" (quoted in Bhatia, 1970, p 179).

Given the relative and absolute prices at which sorghum and millet are purchased by the State it is not surprising that, with the exception of Maharashtra, the procurement record is far from this target. The contribution of coarse grains as a group to the Public Distribution System (PDS)has declined from 11 per cent in the '50s and '60s to 4 per cent in the '70s with wheat making up 50 per cent and rice 46 per cent (Govt. of India, 1976). Since 1975 it does not seem that any targets have been set for coarse grains procurement in contradistinction to common practice with the other foodgrains and in response to an annual procurement performance which provoked constant criticism (ibid. Table 4.6). Contributions by any one State have been highly variable (Tables 9 and 12) and there is no distinct trend in procurement behaviour by the States.

The same applies to the erratic role played by coarse cereals in the Indian State's PDS. Procurement from producers and traders and supplies through Fair Price Shops (FPS) bear little relation to each other through space or time (Table 10 and 13). Stocks of coarse grains are relatively greater than purchases or supplies; more in the control

Table 9: Procurement of Coarse Grains as Percentage of Total Grain Procurement*

	1971-2	1972-3	1973-4	1974-5	1975-6
Andhra Pradesh	-	-	4	0.1	0.2
Karnataka	13.0	4.5	-	16.0	8.0
Maharashtra	9.6	0.3	45.7	52.0	69.0
Tamil Nadu	5.0	-	-	-	-
All India	5.0	1.0	3.5	4.4	4.9

* overwhelmingly kharif procurement

Sources: data in Table 4, G.O.I., Bull. on Food Statistics, various dates.

Table 10: State & Central Supplies of Coarse Grains to State Government Institutions and Fair Price Shops as Percentage of all grain supplied

	1971	1972	1973	1974	1975
Andhra Pradesh	2.0	16.0	2.5	-	-
Karnataka	4.7	1.5	24.0	38.0	15.0
Maharashtra	1.3	5.0	25.0	25.0	5.0
Tamil Nadu	1.9	2.3	-	4.0	-
All India	0.9	3.7	10.6	11.0	3.0

Sources: as for Table 9

Table 11: Average monthly stocks of Coarse Grains in the Public Distribution System

	Central 1000 tonnes	Pool % of total stock	State 1000 tonnes	Control % of total stock
1973	97	6	113	9
1974	180	11	190	13
1975	41	2	175	8

Sources: Table no.4.3 data, as for Table 9.

Table 12: Procurement of Coarse Grains '000 tonnes

Maharashtra (almost completely kharif)

	Sorghum	Millet	Total Cereals	% Coarse Grains To Total
1971-2	23	-	206	11
1972-3	33	-	99	33
1973-4	97	67	325	50
All India				
1967-8	391	114	4004	13
1968-9	331	-	3897	8
1969-70	203	15	3217	7
1970-1	65	86	3682	4
1971-2	26	2	3297	1
1972-3	161	29	3017	6
1973-4	150	139	4274	7

Contributions to Central Buffer Stocks

Maharashtra	nil			
All India				
1967-8	16	96	1267	8
1968-9	-	-	1071	-
1969-70	-	15	1292	1
1970-1	1	71	2270	3
1971-2	-	2	2017	0.09
1972-3	99	1	1633	6
1973-4	-	38	2079	2

Source: data in Table 4.4 G.O.I. Bull. on Food Statistics, 1975

Table 13: Distribution through PDS '000 tonnes, Coarse grains

	Coarse grains	Total grains	%Coarse to total
Maharashtra			
1971	73	1237	6
1972	36	1677	2
1973	552	2404	22
1974	640	1979	32
All India			
1968	1179	10221	11
1969	785	9385	8
1970	444	8841	5
1971	131	7816	2
1972	293	10487	3
1973	1078	11414	9
1974	1368	10790	11

N.B: Calendar not agricultural years

Coarse grains include sorghum, millet, maize, ragi, barley

Source: Table 4 data, as for source of Table 12.

of the States than the Centre (Table 11). Procurement of coarse grains was accepted as a sporadic function of parastatal agencies supposed to be carried out to support prices. We have already had ample evidence of how notional this function is.

By 1977 however, the Agricultural Price Commission recognised that

> "The foodgrains stocks with the Government are so heavily weighted in favour of wheat that the commodity composition of the buffer needs now to be rendered more balanced" (APC, 1977, p 4)

But pulses and coarse grains cannot be imported in more than negligeable quantities, hence special problems are faced by the parastatal corporations advised by the APC with enlarging and changing the composition of the Central Government buffer. We need to look more closely at this recent change in policy.

We have already shown, with reference to two dryland states, that the claim of the APCs that the State, through its management of stocks can determine levels and gradients of change of market prices in commodities over which it has control through State trading, but cannot be expected to control the price behaviour of pulses and coarse grains cannot be considered to be substantiated, even though the security of buffer stocks was not in doubt (after the drought of the early seventies). In the same way we must also question the assumption of non substitutability. Our questioning is significantly affected by the influence of countervailing forces on the market. The most notable of these is the difference in consumption patterns between urban areas (for which price and arrivals statistics are collected and for which the PDS is overwhelmingly oriented) and rural areas where 92 per cent of the coarse cereals produced are consumed (Bapna 1976, p 5).

Urbanisation reduces demand for coarse cereals where they are clearly an economically inferior good with an income elasticity of -0.36 (op.cit. p 14-15). It is unsurprising then that the elasticity of substitution for wheat (whose per capita availability has doubled from 1951-74) by coarse cereals, when judged from the analysis of (largely urban) price statistics is very low (Thamarajakshi, 1970, p 1).

In coarse grains producing States rural prices for coarse grains are lower and for fine grains higher than are urban prices (Bapna, op.cit., p 23-4). While there is some urban bias in the analysis of cross elasticities of substitution in the "free" market, there is more urban distortion in the behaviour of the public distribution systems. The National Commission on Agriculture (Govt. of India, 1975) reviewing the procurement record recommended that the IDS should cover on a regular basis:

i) all cities and towns with a population more than 100,000
ii) all industrial town workers covered under the All India Consumer Price Index numbers for Industrial Workers.
iii) chronically drought prone areas
iv) areas affected by serious floods (for three months per year)
v) all urban areas and rural areas in Jammu and Kashmir and Kerala

This is clearly a system geared to protecting organised labour, urban populations and a minimum rural population in strategic areas plus emergency relief. For such categories the crop composition of the PDS is appropriate. The character of demand of such sectors is the logic behind the planned form of the PDS and the price and procurement policies adopted.* This is a significantly different system to that proposed in the Fourth Five Year Plan where the rural poor were envisaged as the object of the PDS; and also to that proposed by the APC in 1969:

> "The opportunity provided by the good crop should be availed to extend the PDS to the vulnerable segment of the rural population and to procure for that purpose substantial quantity of coarse grains" (APC, 1969)

The APC's responses to its own repeated exhortations to change the balance of crop composition of the buffers was to raise paddy prices for 1977-8 but maintain coarse cereals prices at 1973-4 levels, increasingly lower than the lowest post harvest slumps on coarse grains markets. Hence our understanding of price policy and of the procurement record shows the extreme unlikelihood of a substantial change in the crop composition of the PDS.

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*The PDS has however been used on occasions to change the dietary habits of consumers forcibly. In Maharashtra and West Bengal wheat purchases have on occasions been made obligatory for the acquisition of rice on ration (Lele, 1971, p 231).

We shall now look in detail firstly at Maharashtra, the only State where coarse grains procurement is a significant component of the PDS and where State trading in coarse grains takes place under official monopoly conditions. We shall afterwards examine cases of partial procurement under levies of various types.

Monopoly procurement of sorghum in Maharashtra

Maharashtra is the largest sorghum producing State of India, contributing about a third of total production (Lele, 1971, p 14, p 20). For most of the period from 1961 to the present time, sorghum has been marketed under considerable State control. Under the Maharashtra Foodgrains Procurement Levy Order, producers can be directed to produce, store or yield up foodgrains (rice and sorghum) at the discretion of Officers of the Department of Food and Civil Supplies or of the Civil Administration (Govt. of Maharashtra, 1976, pp 147-150), under a system of monopoly procurement at prices specified by the State Government (always those advised by the APC) (G.O.I., 1975 p 206; Ashturkar, 1977 p58-60). Residues above that specified by Government can be consumed or sold to Government (Nadkarni, 1973, p 190). The State of Maharashtra procures under monopoly conditions a quantity that has varied from 20 to 90 per cent of all coarse foodgrains officially procured. The proportion of coarse grains in the State's purchasing system in increasing in marked contrast to that of the nation as a whole (see Tables 12 and 13). The tables also show the extent to which State trading in coarse grains are the preserve of State agencies rather than those of the Central Government. Maharashtra is the only State where there is significant co-operative trading in coarse grains (N.C.D.C., 1976, p 24). In 1975-6 the co-operatives purchased for the Maharashtra State Government 231,280 tonnes of sorghum and 17,427 tonnes of millet.

At the retail end of the State trading system the picture is somewhat different. Coarse grains are relatively less important than in the purchasing system, the difference made up by wheat imported from North India (Lele, 1971, p 231). By contrast in the FPS of the country as a whole, coarse grains are increasing in relative importance, presumably because of the decline in international wheat imports and the increasing strategic importance of domestic procurement to the

supplies of the PDS. Maharashtra State has more FPS than any other; their number has ranged according to circumstances of production between 6,500 (1961) and 323,973 (1967) but generally oscillates between 25 to 30,000 shops. These shops are overwhelmingly metropolitan in location (G.O.I. 1974, p 60; 1976, p 50).

In view of the existence of monopoly procurement at fixed prices there are of course no published market prices for sorghum and millet. However given the relationships between official and market prices in other States, that procurement prices are lower than market "equilibrium" prices would have been is widely asserted, and evidence is produced for levy evasion and black marketing (Vartak, 1969; Nadkarni 1973 p 191-2). Increased procurement under these circumstances involves increased coercion, though there is to my knowledge no detailed study for Maharashtra comparable to that by Panikulangara (1976) for Kerala where the State is attempting to implement monopoly procurement of paddy at fixed prices.

It is therefore interesting that despite widespread attempts by the Department of Agriculture to diffuse modern production technology, the acreage down to sorghum has declined over the period 1956-73 and (if the bumper year of 1960-1 and drought years of 1965-6, and 1971-2 are excluded) that the compound growth rate of sorghum production in the State over the same period is 0.03 per cent. Soghum production has effectively stagnated. This compares unfavourably with the growth rate for millet, not subject to monopoly procurement, of 1.2 per cent per annum, itself a rather low rate (Ashturkar, 1977, p 58-60; 139-142). One should not exaggerate the negative effects of State trading upon production. Patil and Jha (1978) corroborate a general reduction in the growth rates of agricultural output from 1961 and attribute this to retarded development of appropriate technology. The action of State trading is one of many factors inhibiting the expansion of foodgrains production, others of which include the high vulnerability of new varieties of coarse grains to pests and diseases, the high costs of inputs (labour excluded) and the lack of irrigation facilities (see Adams and Bumb, 1978) which in any case provokes a diversion of land from coarse to fine grains. And Ashturkar reminds

us that water is necessary for the new coarse grains technology not only to facilitate plant nutrition but also to dilute pesticides.*

However von Oppen (1978) has demonstrated in his activity analysis for 3 crops and 3 regions based on data for rice, sorghum and chickpea for A.P., M.P., and Maharashtra that the action of the market: the "free" play of prices, interregional trade and the response by production to comparative advantage gives the result that the "Maharashtra" simulation has a more reduced aggregate production under free market conditions than under trade restrictions.

"Maharashtra" in this simulation of liberalised exchange suffers from comparative disadvantage. Both sorghum and millet face similar institutional constraints, yet their growth rates differ. In this case of what is known as the "socialisation" of the grain trade (but what is effectively the statisation of exchange) there are no obvious gains. Producers in Maharashtra are the immediate net losers and consumers including the landless lose in the longer term unless fine grains (which need assured water supplies) can compensate for this decline in per capita availability. The influence of State trading upon the market and upon production deserves much greater attention.

Partial state procurement: The levy

It is only in Maharashtra that State trading in coarse grains has assumed the extreme form of monopoly procurement. Elsewhere procurement has been compulsory but partial, using the mechanism of levies either on producers or on traders. Levy prices are advised by the APC but frequently hoisted unilaterally by Chief Ministers, either as an obvious political favour to powerful kulaks, or to provide discriminatory "incentive" prices in particular districts where State procurement is concentrated (e.g. the Godavari delta in A.P. and the Thanjavur delta in Tamil Nadu) or to encourage special crop varieties (e.g.HYVs) or

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*Bhalla (1977) further reminds us that within the sector of agricultural production, institutional rather than infrastructural factors are likely to be the key brakes to increased foodgrains production.

qualities (an indirect favour to producers of large physical surpluses) or for traders who have incurred trading costs prior to relinquishing crops to the State. The objectives of the levy are to gain access to sufficient supplies to fuel the essential PDS at minimum cost to the State. The levy is a creeping "socialisation" or statisation of trade. It differs from the procurement system of Maharashtra in that it does not eradicate the market but operates alongside and interacts with it. However with respect to coarse grains there is not known to be any regional alteration to the prices advised by the APC. Each State controls the manner of implementation of its levy which may further vary according to crop composition and to expectations of harvest size. Large numbers of combinations and permutations of policies are possible. There are partial levies of producers of coarse grains in Karnatake and Rajasthan, on traders in M.P. and U.P. and on both in A.P.(G.O.I., 1976). However to my knowledge and with one brave exception (Pattanshetti for Karnataka, 1976, p216-226) there are no studies on the operation of levies in coarse grains . We must examine the problems involved in their implementation by referring to published studies on levies on producers of rice in Kerala (Panikulangara, 1976; George, 1979) on producers and traders in paddy and rice in A.P. (Subbarao, 1978a and b) and traders in paddy and rice in Tamil Nadu (Harriss, 1977 a and b). This literature is concerned with three main sets of problems:

i) reasons for the performance of partial interventionist levies

ii) uncertainty and change in this means of intervention

iii)the social effects of this intervention.

i)Performance

Public procurement of rice over the country at large has been declining both absolutely and relatively to production since 1970 (G.O.I. Bull. on Food Stats./various years; APC, various years). This performance has occurred despite the tendency of partial State trading to expand, both geographically (see Diagram 1 earlier in this paper and von Oppen, 1978) and socially with an expansion in the rate of levy extraction from producers and a contraction of the threshold for exemption (Panikulangara, 1976). This apparent contradiction has been explained in various ways.

Firstly the influence of the relation between official and "market"prices has been investigated. Levy prices in Tamil Nadu, Kerala, Andhra Pradesh and Karnataka are always below those of the open market (George, 1979, p 21; Harriss, 1977 a p 227; 1977 b; Subbarao 1978a; Pattanshetti, 1976, p 216-23; Krishnamurthy, 1977, p 30). George finds by regression analysis that in Kerala the volume of public procurement is a function of the relation between free market prices and official prices (op.cit.p 23). Subbarao investigating 2 major rice surplus districts of Andhra Pradesh finds that is only the case when the ratio approaches unity (1978, a p11). Otherwise he finds that the relationship between procurement and production is a function of that between the "free" market prices of cordones - off surplus districts and "free" market prices of contiguous deficit districts. Where the latter ratio is high interregional smuggling reduces the former ratio and explains discrepancies between targets and procurement records (op.cit.p1-17) Pattanshetti has exposed a number of "non price" factors accounting for poor performance in the producer levy on paddy and sorghum in 6 northern districts of Karnataka. Over half of the producers had to pay transport costs from their villages to the purchase points, repayment of which the State is officially obliged to provide. 20 per cent of producers were made to pay unauthorised excess charges, 5 per cent owned to paying bribes, and 35 per cent were not reimbursed until over a week later (1976, p 221-3).

ii) Uncertainty and Change

An enduring feature of partial levies is the uncertainty. This is characterised by sudden changes in the proportion extracted by the State through time (in Tamil Nadu 14 changes in the years 1970-74(Harriss, 1977 a, p 226)), in the districts covered, in the way in which the levy is exacted (either by static or sliding percentage scales from producers according to holding size; percentages of transactions from traders; or slab scales from producers) and finally in the intermediaries from whom the levy is taken, who supply the State. Low price levies from traders provoke evasion (see Harriss, 1977 a, pp 230-33) and may distort the residual free market in a manner discussed below. Producer levies may similarly

provoke evasion. Subbarao estimates that from 1968 through the '70s between 60 to 65 per cent of leviable produce escaped the net of the State (1978 b, pp69-77, 1979). Panikulangara describes the process in Kerala in detail. Land cultivated by relatives of registered owners escapes the levy. Land not down to paddy (i.e. fringed with coconut palms or some other similar ruse) escapes. Land of fictitious tenants escapes. Appeals may be filed for crop failure through drought, insect damage, flood etc. Political pressure is exerted where possible to enforce exemption and the power of the State to implement levies and to punish violations is generally inadequate. It is clear that while in theory the total exemption from low price levies of small farmers cultivating less than 2 acres represents an income transfer to small farmers (from data in George, 1979, Table 16 p38; Subbarao, 1978 b, pp76-78) in actual fact widespread evasions especially by the class of landlords and Government officials are a countervailing force against this income transfer.

iii) Effects of the levies

Three effects can be distinguished; firstly that on free or residual market prices. There are three further aspects to this affect. If the partial levy on traders is at prices below those of the free market, then traders compensate for their actual monetary loss by hoisting onto the residual market this loss, averaged out according to the size of the levy (George 1979, p23 footnote; Harriss 1977b). Then if levy proportions increase within one trading season, the level by which loss is estimated may not be the original "free" market price but an already distorted residual market price, further hoists to which exaggerate the price distortion produced by the response. (This has been demonstrated theoretically and empirically for paddy and rice in Tamil Nadu by Harriss 1977b). Furthermore if levies are accompanied by movement restrictions (discussed in the next section) then treble market structures are generated rather than dual ones (pace George, 1979) consisting of the fixed levy price, the distorted free market price and the black market prices relating to smuggling into cordoned-off deficit areas.

It is therefore difficult to determine empirically the effects of the levy on production because of the complexity of and the lack of data

on the multiple markets where partial levies are taken from traders. Where they are taken from producers at price below those of the free market and where accompanied by movement restrictions, artificially low prices in surplus regions may be expected to depress production of crops in which the region has a comparative advantage (the degree of response depending on the price elasticity of production). The reverse should occur in deficit districts. However the simulations of Von Oppen (1978) based as nearly as possible on "real" data show that the depressing effect on productions of large scale intervention in trade is empirically slight. Subbarao also corroborates this observation for A.P.:

> "Our findings indicate that just as high prices may be expected to have little impact on production under static technology, low prices need not necessarily impair production under conditions of rapid technological change"(1978a p19).

And low prices are in practice widely evaded (ibid). Panikulangara by contrast finds some (unquantified) diversion of land away from paddy in response to the low price levy in Kerala (op.cit). The effect is obviously not as marked as with monopoly procurement in Maharashtra, described earlier.

The effect of partial levies on consumption is a function of the price distortions of the residual market. Those penalised are not consumers in producing regions where market prices are higher (not for speculative reasons) than they would have been without the levy. These are frequently the landless and poor producers (see evidence on purchasing patterns in northern Tamil Nadu in Harriss, 1977a, pp304-21). Those who benefit are those with access to directly subsidised foodgrains, most usually urban populations and the organised labour force. These effects are however hard to dissociate analytically from those of a measure which very frequently accompanies levies: that of geographical restrictions on trade.

Movement restrictions

Restrictions of the geographical flows of agricultural commodities is an inevitable ancillary of increasing the monopoly role of State trading Such restrictions are predicated on the assumption of supply scarcities,

exacerbated by an imperfect market mechanism. The cordoning of regions enables the State to procure supplies from surplus regions and distribute to regions in deficit thereby reducing price disparities that would result from speculation by private trade (Dantwala, 1976). Heroic assumptions about the ability of States to abide by the discipline of food budgets drawn up accurately and nationally are built into the implementation of movement restrictions. In practice surplus states underestimate their "equilibrium" surpluses and deficit states overestimate non market demand. Food zoning is yet again an area of interaction between Central and State Governments. Diagram 1 appended earlier shows its complicated history.

The ability of the states to implement zoning has depended on the detailed nature of the relationship between official prices and market prices and the extent of state trading. For wheat and rice in years such as 1967-68 when the official procurement price exceeded market prices, zoning was advantageous to surplus states. Normally, however zoning reduces market prices in surplus regions and raises them artifically in deficit regions. It therefore disrupts what forces exist towards regional specialisation according to principles of comparative advantage and shifts the terms of trade away from agriculture (Bhatia, 1970 p165-73; Ray, 1970; Krishnaji 1973). Implementation of movement restrictions has been characterised by vacillation which is an independent factor affecting market behaviour under these restrictions.

Aulakh and Kahlon (1978) investigating the effects of movement restrictions in rainfed crops such as gram and maize as well as in wheat in North India during the '60s, found that coefficient of price variation, intermarket price differentials, and indices of seasonal price variation all showed increasing amplitude and distortion with increasingly tight regional zoning; and correlation coefficients (not a statistically reliable index of integration, see Harriss 1980b) declined. Krishna and Chaudhuri show that inter state price discrepancies increase systematically with the intensity of zonal restrictions (1977, quoted in Subbarao1978a). Harriss also found markedly more uncertainty in interregional price relations and price behaviour for paddy and rice in Tamil Nadu during times of movement restrictions between districts than when free trade was allowed (1976 b; 1977a). Such distortions and uncertainties

were mixed at times of change in policy. Subbarao examining State procurement of rice in Andhra Pradesh finds an inverse relation between the quantity procured and firstly the degree of tightness of movement restrictions (intensifying from state level down to within districts at times over the period 1967-75), and secondly the ratios between prices in deficit areas and prices in surplus areas, which encouraged smuggling and evasion of levies (1978 a and b).

Irrespective of the independent effects of increased uncertainty and price distortions, von Oppen, using actual data from A.P., M.P. and Maharashtra shows in a 3 crop/region didactic simulation model that a curtailing of inter state trade (by 90 per cent) results in a reduction of aggregate agricultural production (by 2 per cent under assumptions of technological stasis). If a cost reducing new production technology is introduced then the effect of a constant per centage reduction in trade has a progressively greater effect on production (1978, App.IV).

Restrictions on interregional trade in coarse grains has never been as assiduously implemented as in fine grains (see Diagram 1). But there is extraordinarily little pattern to what has been attempted. Restrictions have been imposed in Rajasthan, M.P., Maharashtra, and West Bengal from 1966-77; in Punjab and Haryana from 1966-73; in U.P. and Gujarat from 1971-73; in Bihar from 1967-70, Orissa from 1966-69, Karnataka 1971-2 and Andhra Pradesh between 1966-68 and 1971-5.

The price distorting effects of zoning in crops other than coarse grains will affect demand for, and supply of coarse grains themselves depending on the cross elasticities of substitution and relative price levels (see Bapna, 1976 p22).

The interest and value of research into such effects is currently historical in view of the dezoning of the whole country for all foodgrains in 1977, atleast until renewed scarcities. Their removal has exacerbated the monitoring of state trading via partial levies on traders though movement restrictions may be less necessary when the state gets its supplies through levies on producers (see Subbarao, 1978a for arguments for this and Gulati and Krishnan, 1975, for the case against).

Movement restrictions are a manifestation of the contradictory

effects of two types of State intervention. Necessary to facilitate effective State trading, though not sufficient for it, they act in practice as a blatantly countervailing force to price integration through regulated marketing.

We may conclude that the partial procurement system, in minimising the costs to the State of State trading, maximises distortions on the market. Non price factors are thought to be equally as important as price factors in accounting for the poor performance of procurement by partial levies, in particular defective administrative machinery, allowing for widespread evasion. Though there are no detailed published studies of levies in coarse grains (and the topic clearly deserves high priority in research) we shall look now at some evidence for the institutions involved in the administration of State trading in coarse grains.

The administrative institutions of State trading

As Nadkarni says:

> "Procurement in India has been a curious mixture. It is undertaken by State Governments on both the Central Government account and also on their own accounts. Generally it is the Food Corporation of India which is entrusted with the task of procurement as an agent of the State Government concerned" (1973 p190).

This conveys succinctly an administrative complexity. The centre establishes targets; the States, via a Central Government agency, try to achieve them. There is considerable interstate variation in the precise institutions implementing procurement and in the power of the FCI. These relationships also vary through time (Bhatia, 1970; Kulkarni, n.d.(A)). The FCI may reverse the administrative process and operate through State Civil Supplies Corporations who buy for FCI as well as on their own account. In turn the State institutions may use licensed traders, Cooperatives or the Revenue Inspectorate as primary intermediaries (see Lakshme Gowda 1977; Pattanshetti, 1976 for Karnataka). FCI when trading on its own account began in 1965 by procuring from Regulated Market yards and licensed private traders. By 1967-69 it started to act in some States as an agent itself. It is an independent trader in Kerala,

an agent of the State in Karnataka, a partner of the State in Punjab and an agent of the Centre in Orissa (Kulkarni n.d.(A)).

Three things are immediately clear (i) the complexity of the institutions of State trading (ii) their instability (iii) the additional costs to the State's marketing margin that result simply from this proliferation of parastatal intermediaries. In this section we shall examine the characteristics of 6 sets of State institutions: the Food Corporation of India; the State Civil Supplies Corporation; the Cooperatives and the National Cooperative Development Corporation; the Fair Price Shops and the Cooperative Consumer Federation retail outlets. We shall look at storage and warehousing separately, in the following section. In this way we shall pursue the flow of foodgrains through the State trading apparatus. It must always be borne in mind that given the neglect by the State of coarse grains, this exercise indicates likely institutional constraints to be encountered in expanding the coarse grains component of State trading every bit as much as it indicates those constraining it now.

Food Corporation of India

The Central Government passed the Food Corporations Act in December 1964. Set up in the context of increasing dependence on food imports and of soaring food price levels the parastatal's objectives were defined by the Ministry of Food and Agriculture in the following way:

> "The Food Corporation will enter the foodgrains market with the object of ensuring proper distribution of foodgrains at reasonable prices throughout the year.. Through its activities...the Corporation will provide a countervailing force to the speculative activity of the trader...The Corporation will be encouraged to function generally as an autonomous organisation working on commercial lines. It is expected to secure for itself a strategic and commanding position in the foodgrains trade of the country...It is necessary that the Corporation has the active and continued cooperation of the Central and State Governments" (G.O.I. 1965a p2).

Its role was construed as solidly partially interventionist, with "a higher code of social conduct than that of the market" (Bhatia, 1970,p188).

> "The FCI shall resort to no compulsion or fear but will rather appeal to the producer's enlightened self interest, to the trader's conscience and to the consumer's patience"

said its first Chairman T A Pai in 1965. The Jha Committee recommended the inauguration of Government Trading

> "thrpugh which it can influence the market forces and thereby minimise the use of statutory controls for the enforcement of prices" (G.O.I., 1965b, p12).

FCI also had responsibility for building and managing national buffer stocks (FCI, 1965 p10; Panikkar 1965). Let us now turn to its record.

Since its creation the FCI has expanded massively, Table 14. In 1965 it procured 618,000 tonnes of grain, in 1971 6.4 million tonnes and in 1977 9.1 million. In 1965 the crop composition was entirely rice. By 1970 it included wheat, maize, millet, barley and gram. The contribution of coarse grains has however been negligeable. Only Rajasthan provides FCI with a sizeable

Table 14

Expansion of F.C.I.

	1965-6	1969-70	1977
Foodgrains purchases(Rs.crores)	158	684	
Foodgrains sales (Rs.crores)	131	800	5000
Assets (Rs crores)	15	549	
Working capital (Rs crores)	30	244	
Storage capacity(lakh tonnes)	7	56	
Personnel	4000	27000	70000
States	4	All	All

Source: Kulkarni, n.d. c.c.p7); Chawla, 1978.

tonnage (G.O.I. 1976; Lakshme Gowda 1977). Considerable progress has been made in the physical infrastructure of storage and the acquisition of buffer stocks. International finance in the form of the International Development Association

(the soft credit wing of the World Bank) has awarded $100 million to FCI for 3.2 million tonnes of bulk silo storage with the most modern handling equipment (Lakshme Gowda, 1977). This is known to be technology which requires an extremely high level of capacity utilisation (75-80 per cent) to reach break even point under economic conditions of India.*

With an annual turnover exceeding Rs.5,000 crores in 1977, the FCI is, however, the largest parastatal in India and the largest foodgrains parastatal in Asia (Kulkarni n.d.(Ap.1.); Chawla, 1978,p32).

Despite the size of its procurement operations the role of FCI in the interregional (inter State) grain trade is small. Its buffer, however large, is not successful in influencing market prices (Bhatia 1970, p.191-3). Official quality standards have deteriorated. In 1970, the impurity threshold 0.2 per cent foreign matter. In 1978 this was 1 per cent. Losses through deterioration, infestation and pilferage presently stand at 3 to 4 per cent (Chawla, 1978,p33). The transit and storage loss, Rs 2 per tonne in 1968, was Rs.14 per tonne by 1971 (Financial Express, 1971). If FCI puts pressure on speculative trading in times of scarcity (not proven) it does this at the expense of high average operating costs.

> In 1970 "the costs and margins...are still somewhat higher than those normally added by the trade (see Diag. 2, and APC 1969b para 34).

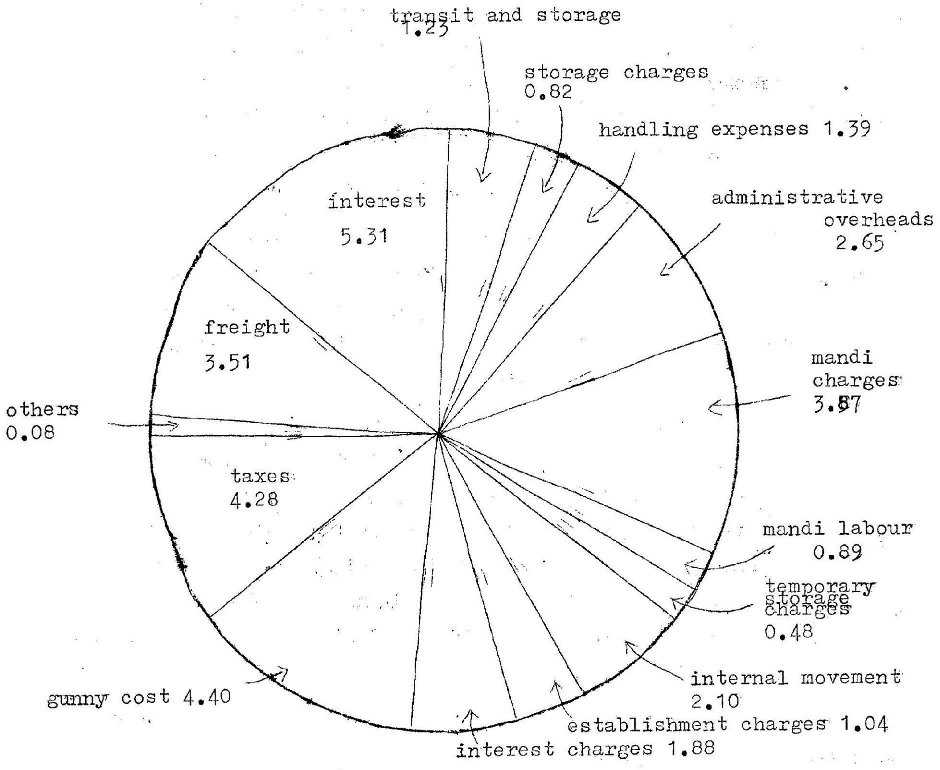
FCI's working capital is a large component of total capital which leaves the Corporation financially vulnerable (or would do under competitive market conditions). Payments to other parastatal agencies involved in procurement increase distributive margins above that of private trade (Times of India, 1971). The initial subsidy on distribution came from trading profits on imported wheat whose c.i.f. price was substantially less than domestic procurement price (ibid). Increasingly the Central Government has subsidised FCI. In the late '60s it was to the tune of Rs.25-30 crores per annum (Financial Express, 1971) but in 1977-78 it was Rs.500 crores (Chawla,1978 p32).

As it has expanded FCI has abandoned its orignal aim to "work on commercial lines". Its massive subsidy** increasingly goes on administering itself: 40 per cent goes on maintaining the infrastructure of the organisation

* These silos also require homogeneous supplies and uniform and low moisture content in the grain. Historically these conditions have very very rarely been achieved (even through State trading) in South Asia (see Harriss 1976a; Desai 1969; Gupta et al 1969).

** 10 per cent of turnover

DIAGRAM 2 : COSTS INCURRED BY F.C.I. PROCUREMENT, STORAGE AND DISTRIBUTION (RS PER QUINTAL) 1977-78 (revised)



Source: India Today July 1-15, 1978

(ibid). FCI has a large administrative cost component because of its representation at headquarters in New Delhi, and at main regional centres where R and D is carried out. Zonal offices and Regional Offices are also administrative and only the District offices play . important functional roles dealing with audit, and the management of transactions and inventory (Kulkarni,n.d.,(C)). Although FCI's labour force has expanded vastly (see table 14) productivity has declined from 237 tonnes handled per employee in 1971 to 130 tonnes per employee in 1977, levels which at their maximum were inferior to those known for one

example of private trade (Harriss, forthcoming).

Establishment costs as a component of total cost have risen rapidly. Due to the pressure of very powerful trades unions, the labour force is paid rates far higher than those of the market, supplemented by a large number of extra benefits. At the top, the elite sector of the administration is described as institutionally complex, and as thwarting decision making and information flows. It is also characterised by high levels of turnover of skilled personnel any by considerable internal dissension since the service conditions for skilled staff recruited directly differ materially from those for the sizeable component seconded as deputationists from Central and State Government cadres (Kulkarni, n.d.(D)).

Thus the FCI does not fulfill the original purpose of State trading. It does not influence market prices through achieving command of a determining proportion of marketed surplus, nor as we shall see later has it been conspicuously successful as a non market relief or welfare agency. Certainly it is not economically viable.

> "The facilities accorded to it by the Government have proved that it is merely a monopolistic Government body (trying to replace) the normal trade channels"

concluded the President of the Foodgrains Traders' Association (hardly expected a priori to be supportive of State trading) as early as 1967 (Rattansey). However we shall see when examining the performance of the entire State trading apparatus, that this conclusions has substance, over and above its lobbying power.

The contradiction in conception between these two roles: price stabilisation and non market relief is resolved by FCI's failure to perform either of them.

There are severe constraints on and variations in the freedom with which FCI operates at the level of the States and there is no coherent national food budget yet at the Centre, which should guide this regional procurements. In its increasing concentration on elite crops such as wheat at procurement prices which may exceed market prices (a marked contrast to the strategy for coarse grains) the subsidised Corporation is alleged to benefit kulak farmers in wheat producing regions. Subsidised issue prices benefit those with access to this non market distribution system (Schaffer 1972; Schaffer and Huang 1975). We shall see that

these are urban populations including some privileged social classes. FCI alsl benefits the 70,000 employees who constitute its subsidised labour force and their dependents.

Yet the FCI is set on an expansion path and is increasing its procurement of pulses and oilseeds. It appears as an example of coarse gigantism in State intervention in the elite crop markets, to prevent speculative distortions in the private markets, the magnitude of which distortions through space and time has not been (cannot be?) definitively established and to which its operations may contribute.

State Civil Supplies Corporations

The 1964 Food Corporations Act also provided for the setting up of State Food Corporations, anticipated to carry out functions delegated by by the FCI. In the event, the Civil Supplies Corporations have a much wider range of activities than those specified, not only procuring for FCI but trading on their own accounts under varying types of State trading legislation (also varying over space, time and crop), and undertaking vigilance operations for a large number of orders relating to food and other essential commodities. We shall look at the State Croporations of Karnataka and Andhra Pradesh.

The Karnataka State Food and Civil Supplies Corporation Ltd (KFCSC) was created in 1973, 9 years after the Central Government had passed the enabling legislation. It was set up under pressure from the Congress party in power at the Centre and the State. Without State Trading Corporations the AICC decision to nationalise the grain trade from 1973 (an experiment that was, in the event very short lived) could not be implemented.

KFCSC was established as sole agent for the procurement, storage transport and distribution of foodgrains with Rs.40 crores of institutional finance for its operation, Rs.38 crores of which were in use by 1976. Its share capital amounts to Rs.3 crores, 75 per cent of which has been taken up (KSFCSCLtd, 1976, p11). In fact it procures grain through the network of marketing cooperatives and via licensed dealers in Regulated Markets (Lakshme Gowda, 1977) being particularly dependent on cooperatives for warehousing facilities and having none of its own. (Ibid; Krishnamurthy, 1977 cn 4). It procures through 14 zones the levy rice and sorghum exacted from farmers on a

slab scale via the intermediaries of the Revenue Authorities and via traders sending consignments on long distances (Govt of Karnataka, 1977, p7). There are problems with low procurement records in relation to targets set for both paddy/rice and for sorghum and ragi, the latter being the main coarse grains traded by the State Corporation (Krishnamurthy, 1977 p60). Unpublished data on procurement by districts over 24 months of the calendar years 1975-6 show that the procurement of coarse grains is markedly more erratic in time and space than is that for paddy and rice (KFCSC data, Bangalore).

The quantity procured on levy has declined absolutely by 33 per cent from Rs.1.8 crores to Rs.1.25 crores between 1975-6 and declined relatively from 7 per cent of total foodgrains procured by the State to 3 per cent (KFCSC, 1976 p 34). In 1975-6 sorghum procurement was 10 per cent of its target (in comparison with 85 per cent for paddy/rice). In 1976-7 it was nil (compared with 35 per cent for paddy/rice) (Govt of Karnataka, 1977, p2, pp19-20).

The Corporation has also traded on its own account in the free market though this accounted for only 18 per cent of turnover. The purchases of coarse grains were insignificant, (see Table 15) Funds for free

Table 15:

Purchases by KSFCSC Ltd., 1974-6 (Rs crores)

	Levy		Open market		Total
	1974-5	1975-6	1974-5	1975-6	1975-6
Paddy	14	23	1.6	14	)
Wheat	-	-	-	2.2	) 40.4
Sorghum	n.d.	1.02	n.d.	0.2	)

Source: Karn.St. Food & Civil Supplies Corpn, 1976 pp9-10

market trading were borrowed from the State Bank of India and advanced to private purchase agents. Large sums remain unaccounted for (Krishnamurthy 1977, ch4).

The official wholesale distributive margins of 38 per cent over producer prices on sorghum, 42 per cent on coarse rice, 47 per cent on fine rice traded through the State (from data in Government of Karnataka, 1977 p5, p8) are very high indeed. Krishnamurthy has analysed the components of KFCSC's distri-

butive margins and finds excessive costs in the commissions paid to intermediaries (parastatal, cooperatives and private), in administration costs, and in regulated market fees (accounted for twice, and actually unpaid: see I.D.S. 1976, Mysore p19). By his reckoning savings of Rs.15 crores in marketing costs were possible on a turnover of 18,000 tonnes 11 per cent of which constituted savings in coarse grains trading (Krishnamurthy, 1977, p 60-78).

The Civil Supplies Corporation of Andhra Pradesh has similar official objectives. Its turnover was 9.5 crores of agricultural commodities in a slightly longer accounting period than the one in which Karnataka Corporation dealt in 40.4 crores over 1975-6 and in a State where agricultural production is 1.5 times greater. (APCSC Ltd. Profit and Loss Accounts 1975-6 Annexure II). Also in contrast to Karnataka, of the identical Rs.3 crores of share capital only 99 lakhs or 33 per cent had been taken up by 1976(ibid). The Corporation trades without an apparent long term policy. In 1972-3 for instance it implemented the "Coarse Grains Procurement Order" under which it purchased 25 per cent of dealers' purchases of sorghum at Rs.58 per quintal. Simultaneously the State Government authorised FCI to purchase sorghum on the free market at up to Rs.80 per quintal ! The Civil Supplies Corporation were agents for FCI in this enterprise! Total procurement of sorghum was 3436tonnes. Over this period total arrivals at the selected markets of A.P. which are monitored for the Government of India publications were 25,200 tonnes which (a) underestimates actual arrivals and (b) gives some indication of the Corporation's ability to administer the partial levy, (G.O.I.1974 p14; Govt of A.P. 1973, p260a). In 1975-6 there were no purchases of coarse grains. Levy rice was 14 per cent of purchases 99.5 per cent of sales; levy paddy 4 per cent of purchases; and pulses 2 per cent of purchases and 0.5 per cent of sales. (Profit and Loss Accounts).

We can conclude that each State has considerable control over the power of its own Trading Corporation; that the official similarity of their objectives masks considerable variation in their activities; that the conflict of interests between the private objectives of the State and the private objective "to the social good" of the Centre places State Trading Corporations in an independent or antagonistic relation as often as it makes them, as originally specified, dependent on FCI, some of the operating problems of which parent institution they mirror.

Marketing cooperatives

It will be remembered that the Foodgrains Enquiry Committee and the Rural Credit Survey Report of the mid fifties envisaged an important role for the cooperatives within the progressive regulation and "socialisation" of private trade. To this end and the National Cooperative Development and Warehouse Board was established in 1956 and spilt up 1963 to form the National Cooperative Development Corporation.

One of the objectives of this Corporation is to finance the trading operations of State marketing cooperatives. In turn these have a 3 tier structure: Cooperative Marketing Federations coordinate activity at the level of the State and below them function District and ultimately primary cooperatives at taluk or village level depending on the historical penetration of the cooperative movement. Finance comes from a number of State and Central Government institutions but the contribution of Central Government is increasing (N.C.D.C. 1976 p2-13). So that the difference between Cooperative Marketing societies and other parastatal corporations is the material attempt to involve non administrative cadres in administration and in contributing to the share capital of the organisations. The N.C.D.C. Annual Report for 1975-6 records that over the 1970s cooperative agricultural marketing has declined in absolute terms, though there has been an absolute and relative increase in the share of cooperative agricultural marketing which comprises foodgrains. This is a very small proportion of total marketing however, see Table 16. Agricultural marketing has declined

Table 16:

Role of Marketing cooperatives for paddy and rice 1974-5; Paddy equivalent, '000tonnes

	Production (1)	Marketed by cooperatives (2)	(2)/(1)
Andhra Pradesh	7410	95	1.2
Karnataka	2704	148	5.0
Tamil Nadu	5416	31	0.5
Maharashtra	1829	101	5.0
All India	52328	827	1.6

Source: Data in G.O.I. 1976; N.C.D.C. 1976 p23.

relatively to trading in agricultural production inputs and non agricultural consumer goods (op.cit, p22). We shall look at case studies of Karnataka and Andhra Pradesh.

The Karnataka Cooperatives account for 6 per cent of all cooperatively marketed produce in India, and, since 1972, have built a net work of stores on which the Civil Supplies Corporation relies. By 1976 74 taluk marketing societies were engaged in marketing either as sub agents for the Civil Supplies Corporation (either procuring the levy as a sub agent for FCI or trading freely) or trading on their own, cooperative, account (N.C.D.C. 1976, p165 and I.D.S. 1976, Mysore p19-20; 1977 Gokak). Commodities traded were dominantly cotton and rice. Considerable economic concessions are made to large farmers by the marketing cooperatives. Transport and credit concessions are offered for consignments exceeding 5 tonnes (IDS 1976, Mysore p101).

> "Arrivals come mainly from the elite. Small and marginal farmers do not have much contact and links with the cooperative institutions because they are already under the cluthhes of the commission agents" (IDS 1977, Gokak,p66-67).

The marketing cooperatives are also not notorious for efficient accounting and also claim privileged and debated exemption from paying regulated market dues.

The Andhra Cooperatives account for 1.4 per cent of all cooperatively marketed produce in India. By 1976/78 cooperative marketing societies were in action, but in only 10 of A.P.'s 21 districts (N.C.D.C. 1976,p7,p164). Overwhelmingly they were used for the procurement of levy rice. In the early 70s however, there were more cooperative marketing societies, distributed throughout the State; but cooperative marketing has been a conspicuous casualty. Of all the short term agricultural credit disbursed through cooperatives in 1970s, that for marketing amounted to 5 per cent, declining to 4 per cent by 1973 (Govt. of A.P. 1970 p19; 1973b, p18-19) while overdues had risen from 42 to 77 per cent of total credit disbursed.

In 9 of the districts in 1970, marketing cooperatives made a total profit of Rs.7.9 lakhs while in 11 districts the combined losses were Rs.79.5 lakhs.

In 1973 only 7 districts made profits on marketing totalling Rs.3.97 lakhs while 13 districts made losses totalling Rs.221.5 lakhs: obviously a situation not infinitely sustainable. (Govt. of A.P. 1970p14; 1973b, p34). Establishment costs came to 51 per cent of total operating costs indicative of problems with decentralised networks of purchasing points. But this is double the percentage comprising establishment costs in regulated markets, and is on a par with the heavily criticised costs of FCI. It is quite extraordinary in the only State trading institution involving popular participation.

The record of cooperatives in foodgrains marketing probably shows more than variation in performance between States than does any other parastatal institution. Neither in terms of market share, nor in terms of economic viability nor in terms of popular participation can they be said to be successful. Their neglect of coarse grains, the food of the people, in these two States is conspicuous.

State foodgrains distribution: Fair Price Shops

State trading has rarely involved releasing supplies onto the open market to contain retail prices below socially specified ceilings. It has functioned as a relief or welfare system via a separate network of Fair Price Shops, whose supplies until recently at least were dominated by imported wheat (Bhatia, 1970,p187-8). A multiple market is created, the high retail prices of the black and residual markets putting pressure on fair price retailers to reduce the differences between markets. The record for FPS is distinguished as follows:

i) the uptake of publicly distributed foodgrains is variable, depending on production and on the relationship between "free" and "fair" prices,

ii) consumers face problems of lack of physical access to State trading outlets, of adulteration and poor quality of grain and, at times, of black marketing,

iii) generally however it is supply rather than demand which is the key constraint on fair price sales;

iv) even though low income groups in urban areas undoubtedly benefit from F.P.S. , those of rural areas are rarely covered by the network and may even subsidise it themselves in the manner described in the section on the levy

(see studies for Uttar Pradesh by V.B. Singh, 1973; and Kerala by George 1979).

We have very little data on the operation of the FPS system in Andhra Pradesh. There are fewer shops (10,200 in 1973) than in Karnataka (which then had 16,400) . The only coarse grains sold are millet and maize traded by the Central Government (Govt of A.P. 1973). In Karnataka, only 25 per cent of the FPS are urban; a further 25 per cent are rural shops in private hands and the remainder are cooperatives. In 1976-7 "informal rationing" was adopted, which meant that sales were ad hoc, subject to stock, inspite of the State's "guarantee" of 2 kgs of sorghum per month in 11 of the 24 districts (KFCSC,1977,pp 4-6,p21). However in fact, all the coarse grains were distributed in 6 districts among which Dharwar took 56 per cent, Bellary 20 per cent and Belgaum 16 per cent. Unpublished data shows the uptake of sorghum in relation to theoretical entitlement at an average of 28 per cent, slightly greater than that of rice (24 per cent) and ragi (17 per cent) indicative perhaps of the likely social importance of cheap grain in rural parts of dryland districts. Uptake is clearly considerably less than entitlement in all cases. Whether it is supply factors that actually constrain uptake, as concluded by Singh and by George is not easily evinced by data on offtake. Table 17 shows that over the 28 months from April 1975 to August 1977 offtake for coarse grains was considerably more variable than that of the fine grains. The role played by the former in the FPS is so small that all we may say is that it is likelier that access to FPS is made by rural populations when price differences between "free" and official markets are great, than that supply through FPS is erratic in face of constant demand.

Table 17:

Variation in Purchases from FPS, Karnataka State.

	Coefficients of variations of monthly offtake data, April 1975 to August 1977	(Proportion of total grains supplied)
Rice	45.6	36
Wheat	55.5	51
Sorghum	69.1	7
Ragi	93.2	6

Source: Unpublished raw data, Karnataka State Foodand Civil Supplies Corporation Ltd., Bangalore

The number of people actually covered by the FPS system in a State with an unusually large proportion of rural outlets is actually extremely low. The sorghum ration at 2 Kgs a month must have fed between 63,500(to 70,000 people in 1976-77. The rice ration by contrast must have fed between 900,000 and 1.7 million people; 24 times as many. The total rural population supposed to be "protected" by the system in Karnataka is 22 million and the total urban population is 7.1 million (data in KFCSC, 1977).

Cooperative retailing

There are 15,000 cooperative outlets compared with 241,000 Fair Price Shops and an estimated 3.3 million private retailing shops in India as a whole (Prasad, 1979, p73). There is no connection between cooperative wholesale marketing and cooperative retail marketing. We examined the problematical record of cooperative wholesale trading. In Karnataka there are 35 retail outlets run cooperatively, all in large towns, and all managed by the Karnataka Cooperative Consumer Federation Ltd. This cooperative purchases foodgrains and pulses on the free market. In 1975-6 it made a Rs. 7.5 lakh loss purely because of its trading in coarse grains; which gave it a net loss of Rs.4.3 lakhs. On the order of the State Government the cooperative bought 1,000 tonnes of ragi at Rs.134-165 per quintal and was equally forced to sell when the market had tumbled to Rs.75 per quintal. This is the complete antithesis of the rationale behind market control by the State. Political reasons behind this behaviour carry more explanatory weight than does economic naievety, but they remain obscure (KCCF, 1977).

In Karnataka, the Civil Supplies Corporation has opened retail outlets for special groups who enjoy privileged access to low price grain. These cover, in order of historical evolution, Government employees, students' hostels, and organised labour working on irrigation construction projects. Yet again the State ministers unto itself. Some experimentation in opening stalls at periodic markets is a bold and socially progressive move planned for the future (KFCSC, 1976 p10; Govt of Karnataka, 1977, p7).

In Andhra Pradesh "to hold the price line of essential commodities" 24 cooperative retail shops had been set up for Government employees by 1970

in urban areas exceeding 150,000 population. Five "department stores" or "superbazaars" had been set up. There were said to be 760 rural cooperative stores. Each urban store had on average 18 times the working capital of each rural store, though by 1973 this discrepancy had declined slightly (Govt of A.P. 1970, p48-9; 1973b,p48-9).

The poltical importance of the urban organised labour force and the elite labour force of the State could not be more apparent than in this discussion of the ultimate beneficiaries of State trading. The existence of three or more price systems, some fixed with liberal or restricted access, some free to move (sometimes within ranges) with liberal access, is the result of the phenomenon of parallelism in the growth of the State apparatus.

Storage: A point of interaction between State trading and regulated marketing*

Although the marketed surplus of coarse grains is smaller in absolute and relative terms than that of fine grains, its supply to the market sets up special problems for storage, as does that of commercial crops in dryland areas. This is because of its timing.

> "One of the chief reasons for the maladjustment between supplies and consumption is the producer's anxiety to dispose of his produce at the earliest in order to meet his pressing demands for cash ...Almost all those engaged in the marketing process...are faced with storage problems" asserts the Andhra Pradesh State Marketing Report on

Sorghum (Govt of A.P. 1977 p.42). Similarly an 8 per cent sample of farmers in 30 randomly selected villages in 6 northernmost districts of Karnataka revised that 71 per cent of produce was sold immediately on harvest, and that of those selling within a month, three quarters of farmers sold to liquidate debt while the remainder sold because of lack of domestic storage facilities (Pattanshetti, 1976, p138-142; see also Govt of Maharashtra, 1964 pp10-11).

State intervention in storage arose historically from a quite

* The economics of national buffer stock management has been excluded from detailed analysis in this paper because of the very small role played by corase grains in what is a hugely complicated and technical issue (see Arvind Gupta, 1977, for a comprehensive study).

different set of circumstances from those either of regulated marketing or of State trading: namely from the 1954 All India Rural Credit Survey instituted to determine courses of State intervention in rural finance. The Reserve Bank of India Act in 1955 allowed a more liberal participation of the Reserve Bank in Agricultural Finance. The Agricultural Produce (Development and Warehousing) Act of 1956 empowered institutions of the State to draw on RBI finance to construct storage. Originally the Ministry of Food, Agriculture and Cooperation took advantage of this via a National Cooperative Development and Warehousing Board (NCDC 1976) but in 1962 2 parastatals were spawned, the National Cooperative Development Corporation and the Central Warehousing Corporation in response to overlapping of functions and lack of coordination between Central Government and those of the States. Later, as State apparatuses proliferated, the Central and the State Warehousing Cooperation, Regulated Market Committees, the Food Corporation of India and State Civil Supplies Corporations became eligible for finance for storage infrastructure.

The original objectives of the Central Warehousing Corporation were technological, administrative and financial. Firstly the provision of modern warehouses of large size, where necessary fitted with specialised technology such as cold storage where goods were treated "scientifically" with modern prophylactic fumigation and disinfestation technology and where produce could be scientifically standardised and graded, was assumed to be progressive. Secondly the CWC was envisaged as an agent of Central Government for the purchase, sale, storage and distribution of agricultural commodities along the lines of the Food Corporations and their relatives, to assist the State in price support and control. Most importantly the provision of storage was envisaged as a measure to prevent distress sale to enable producers themselves to regulate the flow of stocks onto the market, and to expand the penetration of institutional credit into the sphere of both production and commerce by providing low interest credit against goods stored, on production of the CWC receipt (Shadakshataradhya, 1977,pp1-38). As with regulated markets legislation the ultimate beneficiary of the legislation was to be the producer.

In 1957 at inception there were 7CWC warehouses in India with a total capacity of 7,000 tonnes. By 1977 there were 179 with a capacity of 2.6 million tonnes.

In Karnataka the CWC started operation with 3 stores in 1958. Now it

has 7 complexes totalling 76,000 tonnes all in urban centres. 2 of these storage complexes have special facilities for cash crops and for foodgrains (Op. cit. pp46-60; Govt of Karnataka 1976). The State Warehousing Corporation was established in the wake of the CWC. It has the objectives of providing physical infrastructure, to improve the preservation of agricultural produce, to facilitate the provision of credit on stored agricultural produce to "needy persons" and to act as agents of CWC for the purchases, sale, storage and distribution of agricultural produce. Half of the share capital comes from the CWC, also represented on the Board of Directors with power over the choice of Chairman. The SWS of A.P. was set up in 1958, with a combined share capital of Rs.2 crores. That of Karnataka was set up in 1962 with the same size share capital because of "lack of response by private sector" after the enabling legislation had been passed in 1957. Both corporations own or rent godowns (stores). They varied in number between 36-47 during the 70s (Govt of A.P., 1974 p53; Govt of Karnataka 1973 to 1976; Lakshme Gowda 1977). Karnataka had 133,000 tonnes of capacity in 1976; as with most other aspects of State intervention in marketing Adnhra Pradesh had much less: 47,000 tonnes.

We will examine, within the constraints of the literature, the performance of these institutions (there being no data on the CWC in A.P.).

<u>The Operation of the CWC in Karnataka</u>. The CWC has been characterised neither by speedy growth (doubling its number of stores in 20 years) nor by high profitability (making annual losses in its first decade of operation until 1967-8). However in 1976-7 it made a profit of Rs.123.5m. As with regulated marketing, about 25 per cent of its operating costs go on the bureaucratic establishment. Rent and overhead costs comprise each a third of costs as 16.3 per cent is insurance (Shadakshataradhya, 1977, p65). With regard to improved technology: two thirds of the foodgrains consigned were scientifically graded suggesting better success in grading through this institution than in regulated markets. However, consignments are large and are owned either by the FCI or by large traders.

The facilities of the CWC are taken up overwhelmingly by proliferating corporations (especially the FCI, the Fertiliser Corporation of India, Karnataka Food and Civil Supplies Corporation) by publicly / owned fertiliser companies

and privately owned inputs businesses and private traders in agricultural produce (op.cit.p46-71). Taking the State as a whole "Cooperatives and producers are unimportant". This is also illustrated by the case study of the CWC warehouse of 12,600 tonnes at Gadag regulated market (IDS 1977, Gadag p56-7).

Table 18:

Occupancy Ratios

	Producers	Traders	Cooperatives	State Agencies	Central Govt.
1972-3	20	40	20	20	-
1973-4	20	30	20	10	20
1974-5	20	15	10	25	30
1975-6	25	10	10	10	55

If the use to which the warehouses are put differs from its original conception, so too do the commodities. Fertiliser takes up between 40-60 per cent CWC warehouse space. In mysore the CWC store is used for cement and steel (IDS 1976, Mysore p67). Foodgrains stored are largely imported wheat from North India: "Local coarse grains are quite negligible". Finally the role of institutional credit is limited. Credit is extended on an eighth to a quarter of goods stored, mainly being those owned by traders (Shadakshataradhya, 1977 p56-71).

The operation of the State Warehousing Corporation in Karnataka The expansion of physical infrastructure has not been spectacular. Of the 76 stores opened in 19 years of operation 37 were closed because of low capacity utilisation and consequent financial deficits. Those that exist are in large urban market centres. Share capital has seen a slow rate of offtake. Only Rs.6m of the planned capital of Rs.2 crores being invested between 1958 and 1974. Between 1958-67 the corporation made losses of between Rs.24,000 and Rs.3 lakhs a year. Since 1967 the corporation has made profits of between Rs.29,000 and 6 lakhs annually, consequent on the change in use. Modernisation of storage technology has been problematic, SWC has failed to prevent deterioration of poor quality grain procured by the State, fails to systematise fumigation, dunnage and rodent control, especially in rented stores; and storage losses are increasing (Lakshme Gowda, 1977 p 124-33).

The ownership of goods stored, again differs materially from the original projected use. Producers use between 2.7 to 8 per cent of SWC capacity, traders 4.3-15.6 per cent and institutions of the State 75 to 89 per cent (op. cit.p105). Among producers, a study of marketing behaviour at Hubli showed that less than 16 per cent of small farmers (defined in relation to the Small Farmers' Development Agency as those with between 2.5 and 5 acres of dryland or 1-2.5 acres of wet land) used stores to reap advantage of price movements while 33 per cent of large farmers did so. 4 per cent of small farmers availed themselves of grading facilities for cotton contrasting with 19 per cent of large farmers (and the price offered for produce over a three month period post harvest was statistically significantly lower for small farmers than for large ones(Gopala Rao and Sripathy Rao, 1975). Similar conclusions were reached about the use of State and CWC storage facilities in regulated markets of Maharashtra where existing capacity is being used by traders not farmers (Govt of Maharashtra, 1975).

Table 19:

Use of SWC Stores in Karnataka (percentage of capacity used for:)

	Foodgrains	Pulses	Oilseeds	Spices	Fertiliser	Misc.
1970-1	23	5	2	12	67	1
1971-2	34	7	7	1	44	5
1972-3	27	6	3	2	51	10
1973-4	78	5	3	1	8	3
1974-5	45	4	4	.5	32	12
1975-6	45	2	1	.1	49	2

Source: Lakshme Gowda, 1977 p111

The use of SWC stores is similarly characterised by equal dependence on agricultural inputs as on foodgrains (overwhelmingly wheat and rice from the corporation). In Gokak Regulated Market for instance

> "The State Warehousing Corporation godown with a capacity of 800 tonnes is constructed in the yard. But this is mainly used by the Government for fertiliser, storing levy foodgrains etc" (IDS,1977,Gokak,p79 see also IDS,1977, Bellary,p28).

As for credit provision, while total tonnage stored with Karnataka

SWC declined from 181,295 tonnes in 1971-2 to 78,695 tonnes in 1975-6 credit extended against warehouse receipts declined from Rs.23 million in 1967 to Rs.7.9 million in 1972-3 after which it rose to Rs.12.7 million in 1976-7. In the early '70s the Reserve Bank of India actually imposed restrictions on availability of credit against warehouse receipts by nationalised banks as part of general measures to restrict money supply (Govt of Mysore/Karnataka 1973 to 76; Lakshme Gowda 1977, p120).

The Operation of the State Warehousing Corporation in Andhra Pradesh

We have no case study data for A.P. such as exist for Karnataka. The uptake of subscriptions for the share capital of the Corporation, targetted at Rs.2 crores was Rs.5.7 million by 1974 (Govt of A.P. 1974 p53). Business in terms of total deposits declined from 16,000 tonnes in 1968-9 to 10,700 tonnes in 1971-2 and pretax profits declined from Rs.565,377 to in 1971-2 to Rs.50,000 in 1973-4. This poor performance was attributed to scarcity of fertiliser and decline in business from Central Government and other bulk depositors; plus the RBI's credit squeeze policy (op.cit p54; Govt of A.P. 1973,p256). We have only one piece of case study evidence for the use of regulated marketed warehouses in Andhra Pradesh: that of Pesneaud et al, 1976, pp14-15 for Warangal, the largest agricultural market in the State.

> "There are 6 godowns meant for farmers' produce. At present the Market Committee has been instructed by the Government that these godowns should be spared for storing the procured produce of rice and other produce, fertiliser etc. So now they are not used for farmers' produce"

We can therefore tentatively conclude the following: State intervention in storage has not made an appreciable impact on physical infrastructure in these two dryland States. As Pattanshetti notes: from an exhaustive study of infrastructure in 6 northern districts of Karnataka, private traders own 66 per cent of the stores, cooperatives 17 per cent and the State and Central Warehousing Corporations just 8 per cent, the Food and Civil Supplies Corporations have 3 per cent and the Food Corporation of India 1 per cent (1976 p 132-5). Lakshme Gowda estimates that in the State as a whole traders have 20 million tonnes, to the regulated markets' 80,000 tonnes (op.cit.p66)

the SWC's 133,000 tonnes, the cooperatives 560,000 tonnes, FCI'S 200,000 and the Civil Supplies Corporation's 20,000 tonnes. In the country as a whole the Combined Warehousing Corporations own about 2 per cent of all storage (S.P. Singh, 1973, p259). The power of private traders in rural areas has not been threatened. Most of the stores are urban in location and large in size, with some overlap between Centre and the State in location despite the official control of the SWCs by the CWC.

State storage has proved profitable only above high thresholds of capacity utilisation, typically above 75 per cent. (This is characteristic of most "modern" agroprocessing technology, see Harriss, 1976). Such levels of capacity utilisation are only possible because of the patronage of burgeoning parastatals. The existence of one type of parastatal encourages the expansion of others. The existence of a network of large State-run stores historically favours monopoly State trading against the storage of primary producers' crops. Capacity utilisations of upto 130 per cent have been recorded for CWC warehouses in two cases for which there is data. This is achieved by advance booking by parastatals who subsequently do not use all the space rented, which may then be regularly double booked (Shadakshataradhya 1977). In States where corase grains are important crops the quantity stored in SWC facilities is minuscule. The record of credit supplied on stored goods is unimpressive and confined overwhelmingly to private traders who profit from subsidised institutional credit at the expense of producers. The objectives of marketing finance through storage have not been achieved.

The Consequences of State Trading

State trading deliberately changes the relations of production, exchange and consumption for three purposes: to protect producers from imperfect markets, to curb politically excessive speculative activity on imperfect markets and to improve the foodgrains consumption of economically vulnerable people.

Now while we have seen that the quantities which enter the PDS may be affected by the difference between open market and official prices (Krishnaji, 1976, George 1979 p11; Prasad, 1979,p78), the original objectives of State trading, namely to assume control of the commanding heights of the foodgrains economy are unachieved. The degree of control possible over a "free"

market depends on three major factors:

i) the share of the market taken by State trading

ii) the relationship between prices of the State trading system and the residual market

iii) the structure of the residual market, in particular the type of concentration of size distribution of trading firms.

Statements about the favourable impact on the free market of State trading (e.g. Prasad, 1979) generally assume a competitive residual market which is in contradiction with the prior assumptions about market imperfections used to justify State intervention. The recent historical record in Sahelian West Afric shows that under conditions of monopoly control by private traders of interregional commerce, State monopolies are

i) unimplementable

ii) without measurable impact on residual monopolised markets if implemented partially (Harriss, 1979). Indian evidence also corroborates the impossibility of influencing free market prices in the direction of stability via the mechanism of State trading (Gupta, 1977p155 p190-1). There is empirical evidence for its increasing market imperfections and distortions (Harriss 1977b, ; Aulakh and Kahlon 1978).

With regard to consequencies for consumption we have already seem the poor record of coverage of the FPS system in Karnataka which has a relatively high level of State intervention. We have already noted that the groups to be protected (determined by individual States) (a) vary (b) are rarely rural and (c) are most commonly the organised urban labour force and that (d) special privileged access to non market distribution systems of foodgrains are reserved for employees of the State.

Levels of foodgrains consumption are closely related to those of income. Gupta, analysing cross section data from NSS surveys for the period 1961-66 and partial data to 1975 reveals a heavier erosion of real income in the low income deciles than in higher income groups. Agricultural producers and the landless in rainfed areas(especially those prone to drought) have, unsurprisingly, fared conspicuously badly (see Bapna, 1979; Rastogi, 1979, p13; Patil etal 1979 p12). For the most vulnerable groups there was no way of maintaining consumption levels by susbstituting inferior grain because

the substitution floor had been reached (Gupta, 1977p 40-45). The movement of coarse grains prices has fluctuated and risen at greater rates than those of fine grains (Bapna, 1976) with greatest impact on incomes of low income consumers (Mellor, 1978). Gupta and Ashturkar (1977) both show that the acreage to coarse grains is declining because in part of an expansion of irrigation and a diversion of land to "high value" crops, sharpening the difference between supply and demand. Gupta argues that the PDS has not protected the consumption levels of the lowest deciles (1977,p189-190). And Bapna has demonstrated that in rural areas coarse grains are not inferior as conventionally assumed (e.g. Nadkarni, 1973 p44-46). For all but the highest deciles there is actually a positive income elasticity of consumption for coarse grains of approximately 0.10 (1976 p7-16). On aggregate this is masked by the clearly negative urban income elasticity of coarse grains consumption of -0.36. Therefore any increase in income in dryland rural areas (demonstrated as not having occurred by Gupta) would put further pressure on this contradictory situation.

All attempts to budget for a nutritionally adequate, socially comprehensive PDS require such massive levels of public subsidy that all their authors conclude them to be impossible for the country as a whole even if politically possible for a few States (Nadkarni, 1973 p198; Gupta 1977,p193-5; Harriss, 1977a pp 332-344; Chakravarty 1975; George 1979; Ramamurthy 1974). The costs of physical infrastructure and the decentralisation of establishment for complete geographical and social coverage are considered prohibitive.

The consequence is to force the non foodgrains owning population, even if actually foodgrains producing, onto the market (Rudra 1978 p386). Prasad puts it differently: "The consumer is free to supplement Government supplies from the private market" (1979 p73). We have seen that upwards distortion to the private market occurs because of State trading. It might be argued that for coarse grains this distortion is minimal because the State actively trades so little in sorghum and millet. However we have also seen that the State is actually weak in relation to the economic power of private trade and that coarse grains markets are historically more imperfect in performance than are those for fine grains. As we have shown here, it is not so much that State trading plays into private hands (Krishnaji 1976; Rudra 1978 p400) as that the mercantile

sector coopts the apparatus of the State. The market on which the most vulnerable are "free" to supplement their inadequate rations is the most volatile of all.

The trader is now in a position to judge for him or herself the official claims of the Central Government, Department of Food that

i) "The PDS has come to assume a dominant...impact on the operations of the foodgrains economy in general and sets the trend for modernisation...

ii) The maintenance of the PDS has a stabilising effect on prices of cereals ...

iii) The national food security system has ensured a fair deal to the producers and consumers alike in matters of disposal of stocks and prices" (Prasad 1979 p73 p78 p87).

Conclusion: The Role of the State

Both with regard to the intervention of regulated marketing, and with regard to State trading discussed here, the stated objectives have not been achieved, at least so far as one can judge from the research to which we have had access.

An interpretation of the role of the State as benign and welfare oriented would point to (undoubted) ignorance and imperfections in the flow of information as the causes of these failures. An interpretation of the role of the State as a neutral mediator between private interest groups would ascribe failure to mediate successfully to factors such as (undoubted) organisational weaknesses. An interpretation of the State as oppressor of producers would provoke the conclusion that these failures are deliberate (conscious). But the approach adopted here: to try to examine the reality behind appearances by regarding the State as an arena of action of social forces in the wider polity requires different conclusions. Mine are as follows:

State trading has emerged historically as a system serving the interests of urban "vulnerables" and largely inappropriate to those of the vast mass of poor people in rural areas. On the supply side we must acknowledge the logistical difficulties of procuring coarse grains in dryland areas.

The outcome has been the neglect by State trading of coarse grains probably to the extent of over a half of the relative level of procurement achieved by the State in fine grains markets. If policy making and implementation for these fine grains is rightly criticised as ad hoc/crisis oriented/ pragmatic/short term/ incoherent; this is even more true for coarse grains. In addition corase grains policy is residual, formulated in a process of bureaucratic overflow. The residual nature of State trading in coarse grains has been increasing through time, despite the occasional recommendations to the contrary of the Agricultural Prices Commission, which, if judged by the simple criterion of the APC's actions, must serve a rhetorical purpose. The residual policy is evinced by the increasing inability of the State to influence "market" behaviour by price control or by inventory management; it is evinced by the allocation of the physical infrastructure necessary for State trading overwhelmingly and disproportionately to regions other than dryland ones. In crucial respects, especially in State trading in coarse grains, the State is not subordinating private trade but is subordinated by it, its institutions coopted by and adapted to advance the interests of those sought in the legislation to be controlled. The implications of this for the intersectoral transfef of resources remain obscure and unstudied.

If "the State represses to a point beyond which it will foment costly resistance" (Feckman, 1977 p1-2), if "State policids are those of the ruling class" (Krishnaji., 1976), then the key to policy in coarse grains is very simply that the ruling class does not make itself felt so much in policy formulation but in the action of implementation. What the State calls the "socialisation" of the grain trade (actually the statisation of this trade), partial though it is, actually ultimately benefits merchants, (elite) administrative cadres (with access to fine grains) and organised labour. It penalises rural producer-owners and rural producer-landless whose real incomes have in many areas declined*.

The form taken by State intervention in coarse/food grains marketing provokes such intractable problems as to warrant the statement that it is in crisis, not out of melodramatic hyperbole, but in the technical sense of a

*This is a controversial generalisation but see Gupta, 1977 p25-33, for a careful review of the debate, and for independent and further analysis supportive of my conclusion.

a political economic language in which essential structures and contradictions are laid bare.

The essential structures we have described as serving the interests of the bureaucracy, organised labour, certain urban populations and a minimum strategically important rural population. There are many contradictions. The first set is between decisions made by the Central Government departments and parastatals and those taken by the States. Policies on State trading may differ between States at any one time, between crops within States and within crops within a State from year to year. There is a large number of possible and actual combinations and permutations of State trading activities, each not independent of the other because of their impacts on the private market (including the illegal, therefore technically "black" market) whose laws of operation do not recognise administrative boundaries. Secondly State trading itself is in contradiction to forms of State intervention such as regulated marketing (most obviously evinced in regulated prices with simultaneous movement restrictions). But this contradiction, real enough at the level of conceptualisation is resolved by the failure of both interventions in implementation. Thirdly there is a general internal contradiction within State trading between its role as a controller and manager of prices in an essentially free open market and its role as a replacer and provider of relief supplies at subsidised prices below those of the market. Even to draw the common distinction between State and private market may be beguilingly deceptive in its usefulness, though we have as yet no analytical alternative categories with which to understand this area of activity and relationships. Fourthly there is a special paradox in State trading in coarse grains between on the one hand the small physical surpluses, small consignments and geographical dispersion of the commodities in which the State has to intervene in the sphere of production and exchange and the equally sporadic demand in the sphere of consumption; and on the other hand the high cost nature of the physical infrastructure and the manpower deployed in State intervention.

This system with its internal contradictions, its relative neglect, and its external weakness is, moreover, set on an expansion path: The increasing number of State intermediaries or agencies in the sphere of circulation with

mandates incorporating coarse grains not only repercusses on the market to spawn residual and balck markets but also spawns a growing number of different State controlled distribution systems mediated not by the laws of the market but by the rules of access (see Schaffer, 1972; Schaffer and Huang, 1975). Parastate and State compete with (i.e. are in conflict with) themselves as well as with the market. Some of these institutions have large establishment cost components and/or require a net subsidy from general State or Central Government funds. Other instutitons (e.g. regulated markets) contribute substantially to these funds. The cumulative effects of multiple intervention have not been systematically studied. We have shown here that their causes, as important to understand as their effects, also require greatly more refined research. This expansion path is further endorsed by international aid agencies. We have chronicled the internationally financed projects for rural roads, regulated market infrastructure, storage warehouses and silos, for "modern" agro-processing technology, technically "adequate" project appraisals for which have not been made. It would seen that the (para) State is a much more appropriate intermediary for international capital than is private merchants' capital, in terms of the character of its demand to aid agencies for credit, training and technology.

The empirical evolution of State agro-commercial institutions and activity nicely reflect Marx's ascription of the historical role of merchants' capital. On the one hand merchants' capital encourages an increase in exchange. On the other, in the reinvestment of resources in purely mercantile activities there are unprogresive tendencies to promote and defend local monopoly which thwarts productive investment in the expansion of the very commodity production on which both the private and the State mercantile sector depends for its further appropriation of resources. But

> "To what extent it brings about the dissolution of the old mode of production depends upon its solidity and internal structure"

and

> "Whither this process of dissolution will lead does not depend on commerce but on the character of the old mode itself" (Marx,1964, edn, Book 3 ch20).

Regulated markets may have a progressive impact on agricultural production and

its commercialisation in Punjab (see Gill, 1969,1971; Moore et al. 1973, pp48-66) but we cannot say from the research reported in the last paper that this is the case in the agrarian conditions (be they "transitional" /"blocked"/ or "semifuedal") of dryland Karnataka or Andhra Pradesh. Our analysis here of the expansion of State intervention has shown the existence of possibilities of large scale monopoly merchants' capital in the State sector. Simultaneously, institutional fission and conflicts of control between State and Centre have reduced the solidity and increased the instability of merchant capitalist intermediary institutions. Links with national State finance capital (through for example the savings of regulated markets which must be used in part to subsidise the operation of other fractions of State mercantilism) are also complex, unstable and little researchd.

On the evidence that we have presented in the last two papers we cannot say that the role of the State in coarse grains marketing is progressive in terms of increasing production. It is very profoundly confused.

REFERENCES

Adams J. and Bumb B. 1978 Patterns of Agricultural Development in India: Determinants of Land Productivity in Maharashtra Districts, 1971, Develg.Ecs.16, 1,74-83.

Agricultural Prices Commission 1965 Report on Price Policy for Kharif Cereals 1965-6, Delhi

-"- 1969 Report on Price Policy for Rabi Foodgrains for 1969-70 season, Delhi.

-"- 1974 Report of the Agricultural Prices Commission for Kharif Cereals for the 1974-5 Season, Delhi

-"- 1975 Report on the Price Policy for Kharif Cereals for the 1975-6 Season, New Delhi

-"- 1976 Report on the Price Policy for Kharif Cereals for the 1976-7 Season, New Delhi

-"- 1977 Report on the Price Policy for Kharif Cereals for the 1977-8 Season, Delhi.

Ashturkar B.W. 1977 Impact of the HYVs Programme on Production of Major Cereals in Maharashtra unpublished PhD Thesis Gokhale Institute of Politics and Economics, Poona.

Asian Productivity Organisation 1979 Foodgrain Distribution in Selected Asian Countries: Report of a Multicountry Mission, Tokyo, APO OSM 111 78

Aulakh H.S. and Kahlon A.S. 1978 The Role of the Zonal Policy in creating in Imperfect Market Structure in the Punjab Ind J. Ag. Ec. 33,1,59-67.

Bapna S.L. 1976 Production of Coarse Cereals in India: Past Performance and Future Prospects Economics Programme ICRISAT Hyderabad

Bapna S L, Jha D and Jodha NS 1979 Agroeconomic Features of SAT India. Paper to Workshop on Socioeconomic Constraints to Development of SAT Agriculture, ICRISAT, Hyderabad, mimeo.

Beckmann B. 1977 Editorial: Peasants, Capital and the State Rev. Af. Polit. Econ. 10,1-6.

Bhalla S. 1977 Agricultural Growth: Role of Institutional and Infrastructural Factors Econ and Pol Wkly 12,45-6, 1898-1905

Bhatia B M 1970 India's Food Problem and Policy since Independence Somaiya, Bombay

Chakravarty K. 1975 Political Economy of Food Soc. Sc 34 pp17-39 Soc Sc 35 pp21-37

Chauhan K K.S and Srivastava V K 1974 Management of the Public Distribution System for Meeting the Needs of the Urban Poor Tech Report no54 Indian Institute of Management, Ahmedabad.

Chawla P. 1978 Food Corporation of India: A White Elephant India Today pp32-39

Colman D. 1972 Regional Variations in UK Cereals Prices Home Grown Cereals Authority, London.

Dantawala M.L 1976 Agricultural Policy in India since Independence Ind. J Agric. Econ. 31.4

Desai D K 1969 Economic Implication of Modernisation of Paddy Rice System pp 43-48 in J.I.M.

ed. Farmer B H 1977 Green Revolution? Macmillan London

Financial Express 1971 PAC raps FCI: Steep Rise in Storage Losses, August 6th.

Food Corporation of India 1965 Annual Report of the FCI 1964-5 New Delhi

-"- 1972 Flood of the Golden Grain: A Mid Operation Appraisal (Rabi 1971-2) New Delhi mimeo

George P S 1979 Public Distribution of Foodgrains in Kerala Income Distribution Implications and Effectiveness Res.Rept.No.7, IFPRI, Washington

Gill K S 1969 Post Harvest Wheat Market Behaviour in Punjab Punjab Agrl Univ. Ludhiana

Gopala Rao H S and Sripathy Rao K 1975 Small Farmers and Agricultural Prices Ind.J Agric Econ. 30,3,204-14

Gore C 1978 The Terms of Trade of Food Producers as a Mechanism of Rural Differentiation Bull Inst.Dev Studs. p.20.24

Government of Andhra Pradesh 1970 Report on the Working of the Co-operative Societies for 1970 Dept of operation, Hyderabad.

-"- 1973a. Andhra Pradesh State Administration Report, General Administration Dept. Hyderabad

-"- 1973b Report on the Working of the Cooperative Societies for 1973 Dept of Cooperation, Hyderabad

-"- 1974 Annual Report of the Marketing Department 1973-4, Hyderabad.

-"- 1977 Report on the Marketing of Jowar in Andhra Pradesh, Directorate of Marketing, Hyderabad.

Government of India 1957 Report of the Foodgrains Enquiry Committee Delhi

-"- 1965a Annual Report of the Ministry of Food, Agriculture, Cooperation and Community Development, New Delhi.

-"- 1965 b Report of the Jha Committee on Foodgrains Prices for 1964-65 Price, New Delhi

-"- 1974 Bulletin on Food Statistics New Delhi

-"- 1975a National Commission on Agriculture Interim Report on Agricultural Price Policy Min of Food New Delhi.

-"- 1975 b Bulletin on Food Statistics New Delhi

1976 Bulletin on Food Statistics New Delhi

Government of Karnataka */1976 Annual Report of the Marketing Department 1975-6 Bangalore

-"- 1977 Food and Civil Supplies Department Annual Report 1976-77 Bangalore

Government of Maharashtra 1964 Report of the Marketing of Jowar and Bajra in the State of Maharashtra Marketing Survey Series No.1, Marketing Research Office/Bombay

-"- 1975 Evaluation Report on Regulated Markets Evaluation Study No30, Planning Dept. Bombay

* Government of Karnakata (Mysore) 1973 Annual Report of the Marketing Department 1972-3, Bangalore

-"- 1976 Compendium of Statutary Orders Relating to Foodstuffs, Sugar and other essential Commodities Food and Civil Supplies Dept Bombay

Gulati I.S. AND Krishnan T M 1975 Public Distribution and Procurement of Foodgrains: A Proposal Ec and Polit Wkly 10,21

Gupta A 1977 Public Distribution of Foodgrains in India Monograph no.69, Indian Inst.Management, Ahmedabad.

Gupta V K,Gopalaswamy TP & Mathur D.P. 1969 Studies in Modernisation of Paddy Rice Industry Indian Inst Mgement Ahmedabad

Harriss B 1976 Paddy Processing in India and Sri Lanka A Review of the Case for Modernisation Tropical Science 18,3,161-86

-"- 1976b Market Integration and the Effects of Government Intervention in Paddy and Rice Marketing in North Arcot District of Tamil Nadu Bull Madras Inst. Develt.Studs 6,3,159-77

-"- 1977a Piecemeal Planning in Rice Markets ODG Mono graph no.1, Univ of East Anglia, Norwich

-"- 1977b Beseiging the Free market: the Effects of the Paddy Rice Levy in Ed Farmer B H ch 19,276 -300

-"- 1979a The Role of Agro Commercial Capital in Rural Development in South India Social Scientist 7,2,42-56

-"- 1979b Going against the Grain Development and Change

-"- forthcoming Transitional Trade and Rural Development Vikas, Delhi

-"- 1980a Coarse grains coarse interventions I Regulated Marketing: A case study of Andhra Pradesh and Karnataka, MIDS Working Paper 11,Madras

-"- 1980b How to study Agricultural Markets and How not to study them MIDS Working Paper 7, Madras.

Indian Institute of Management 1969 Modernisation in Paddy Rice Industry IIM Ahmedabad

Institute of Development Studies 1976 Agricultural Produce Market Mysore, Mysore

-"- 1977a Agricultural Produce Market Gadag, Mysore

-"- 1977b Agricultural Produce Market Gokak, Mysore

-"- 1977c Agricultural Produce Market Bellary, Mysore

Karnataka Cooperative Consumer Federation Ltd 1977 Annual Report, Bangalore

Karnataka State Food and Civil Supplies Corporation Ltd 1976 Annual Report 1975-6 Bangalore

Kohls R L and Downey W D 1972 Marketing of Agricultural Produce 9th Edn Macmillan New York

Krishna R & Chaudhuri G S R 1977 Some Aspects of Rice Price Policy in India Unpubd mimeo quoted in Subbarao 1978a

Krishnaji R 1973 Wheat Price Movements : An Analysis Ec and Polit Wkly vol 8 no26

-"- 1975 State Intervention in Foodgrains Prices Social Scientist 30-31 pp75-90

Krishnamurthy M N 1977 Role of Karnataka Food and Civil Supplies Corporation Ltd in Foodgrain Marketing with special reference to Bangalore and Mandya Districts M.A. Thesis Ag. Mktg.Mgement IDS Mysore

Kulkarni G R n.d. Food Corporation of India Paper (A)(C) (D)(E) Indian Inst. Mgement Ahmedabad.

Lakshme Gowda A L 1977 Role of the State Warehousing Corporation in the Storage of Farm Produce: Special Reference to Karnataka MA thesis

Lele UJ 1971 Foodgrain Marketing in India Private Performance and Public Policy Cornell Univ Press Ithaca

Lipton M. 1977 Why Poor People Stay Poor Temple Smith London

Marx K 1964 edn Capital A Critical Analysis of Capitalist Production Lawerence and Wishart, London

Mellor J 1978 Food Price Policy and Income Distribution in low Income Countries Ec-Dev and Cult.Ch.27,1,1-26

Moore J R,Johl S S & Khurso A M 1973 Indian Foodgrain Marketing Prentice Hall, India, Delhi

Nadkarni M V 1973 Agricultural Prices and Development with Stability National Delhi

-"- 1979 Marketed Surplus Market Dependence and the Development of the Home market, Social Scientist

Narain D 1976 Growth of Productivity in Indian Agriculture Occasional Paper 93, Dept Agric Econ, Cornell Univ. Ithaca, New York.

National Cooperative Development Corporation 1976 Annual Report NCDC Delhi

National Council for Applied Economic Research 1969 Structure and Behaviour of Prices of Foodgrains New Delhi

von Oppen M 1978 Agricultural Marketing and Aggregate Productivity: A Dimension to be added to Agricultural Market Research Discussion Paper 3 Economics Dept ICRISAT Hyderabad

Pai TA 1965 Food Corporation - Tasks and Objectives Economic Times 19th April

Panikkar K S K 1965 The Role of the Food Corporation of India AICC Economic Review Sept. 15

Panikulangara V 1976 Paddy Procurement through Producer Levy A Case Study of Kerala Social Scientist 4,4,44-55

Patil R G & Jha D 1978 Output Growth and Technological Change in Maharashtra Agriculture : A Districtwise Analysis Ind J Agric Econ.33,3,31-40

Patil R G, Dongat S B & Dhongade M P 1979 Dryland Agriculture in Maharashtra: A Microlevel Study of Economics of the Cropping Pattern and Cultivation Practices Workshop paper, Feb ICRISAT, Hyderabad

Patnaik P 1975 Current Inflation in India Social Scientist 30-31, pp22-47

Pattanshetti C C 1976 Marketing of Agricultural Produce in the Ayacut Areas of Tungabadra, Krishna and Malaprabha Karnataka State Agricultural Marketing Board, Bangalore

Pesneaud F Raju V T & von Oppen M 1976 Markets for ICRISAT Crops in Andhra Pradesh Economics Dept ICRISAT Hyderabad

Prasad K 1979 Indian Case Study pp73-93 in Asian Productivity Organisation

Ramamurthy M 1974 Poverty and the Supply of Wage Goods in Tamil Nadu Sangam Pub, MIDS Publn no.6, Madras

Rastogi B K 1977 Farmers' Concept of Constraints in Adopting Dryland Technology AICRPDA, Hyderabad, mimeo

-"- 1979 Cropping Patterns, Farming Practices and Economics of Major Crops in Selected Dryland Farming Regions of India Workshop Paper, ICRISAT, Hyderabad

Rattansey D 1967 Food Problem: Evils of Official shortsightedness Financial Express Dec 10th

Ray S K 1970 Imbalances, Instability and Government Operations in Foodgrains Ec and Polit Wkly vol 5 no.39

Rudra A 1978 Organisation of Agriculture for Rural Development: the Indian Case Cambridge J Ecs.2 381-406

Sampath R K & Ganesan J 1972 Economics of Dry Farming in Tamil Nadu Publn no.2 MIDS/Sangam Pub Co. , Madras

Schaffer B 1972 Easiness of Access: A Concept of Queues IDS Sussex Communications Series 104

Shadakshataradhya G.C. 1977 Role of Central Warehousing Corporation with special Reference to S Karnataka M A Thesis Ag.Mktg.Mgement IDS Mysore

Sheperd G 1969 Marketing Farm Products: an Economic Analysis Iowa State University Press Iowa

Singh S P 1973 Centre State Relations in Agricultural Development, Vikas, Delhi

Singh V B 1973 An Evaluation of Fair Price Shops Planning Commission G.O.I. Oxford IBH Pub N Delhi

Subbarao K 1978a Rice Price Behaviour and Public Procurement an analysis of the experience of Adnhra Pradesh Indian J Agri Econ 33,3,1-20.

-"- 1978b Rice Marketing System and Compulsory Levies In Andhra Pradesh Inst. Ec Growth Delhi

-"- 1979 Producer Levy Evasion and Income Loss Ec. Polit Wkly Rev Ag.

Thamarajakshi R 1970 Determinants of Rice Prices Ag Sitn in India pp1075-1079

Times of India 1971 Editorial:Foodgrains Figures August 9th

Timmer C P 1974 A Model of Rice Marketing Margins in Indonesia Food Res Inst.Studs.Standford 13,2,145-167

Tomek W G & Robinson K L 1972 Agricultural Product Prices Cornell Univ Press,N.Y.

Vartak H G 1969 Progress in Procurement of Foodgrains in Maharashtra Cooperative Quarterly 53 no.2

* Scahaffer B & Huang W H 1975 Distribution and the Theory of Access Development and Change 6,2 13-36